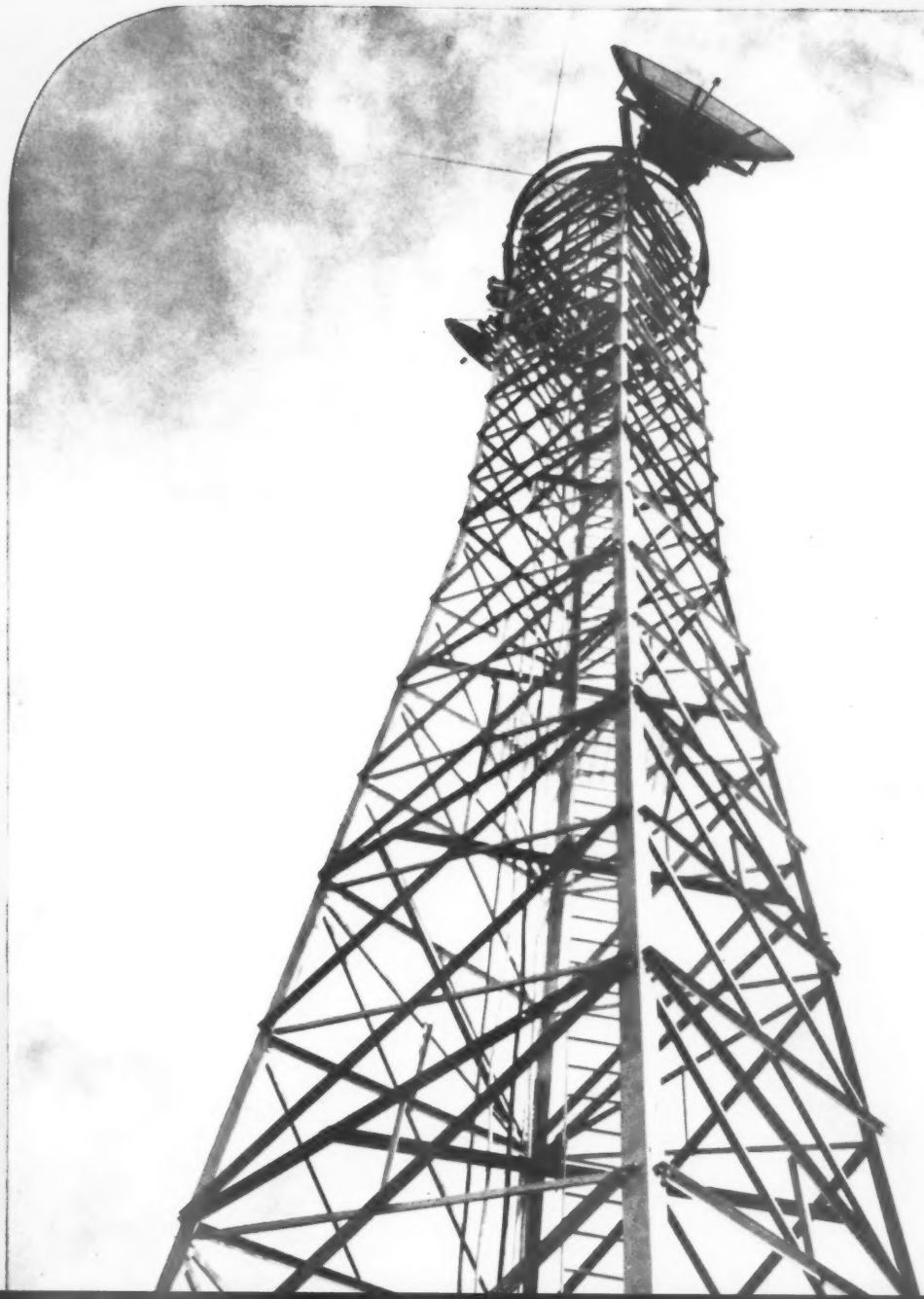
AMERICAN GAS ASSOCIATION

Monthly



APRIL
1960

Look what Gas is building-in for you!

This is the Gold Star of Excellence! It serves as your guarantee of Quality. To win it, each range must be better in at least 28 specifications—more advanced, more automatic, more efficient, better designed. *Only the finest ranges, regardless of maker, earn a Gold Star.*

Your houses will sell faster when women see this Gold Star!

Built-in Selling Advantages . . . Ranges built to Gold Star standards have the features women want: automatic roast controls, automatic burner controls, even automatic rotisseries! These features will help sell houses. Gold Star quality pays off in building *your reputation*, too—most women judge your whole house by details like this!

Built-in Acceptance . . . Both the manufacturers and the American Gas Association are pre-selling Gold Star award-winning ranges to millions of Playhouse 90 viewers, to millions more who see page after page of beautiful 4-color ads in top national magazines. Local advertising and promotion too. A total of $30,000,000 support.

Built-in Cost Advantages . . . Lower installation costs of Gas built-ins save *you* money. Lower use and upkeep costs with Gas appliances, make important savings for your home-owner-to-be . . . a big selling advantage. Call your local Gas Company for free help in planning better kitchens.

AMERICAN GAS ASSOCIATION

Look for these famous names:

BROWN FEATURAMIC • CALORIC
CROWN • DETROIT JEWEL • DIXIE
EAGLE • GAFFERS & SATTLER
GLENWOOD • HARDWICK • MAGIC CHEF
MODERN MAID • MONARCH • NORGE
O'KEEFE & MERRITT • REAL HOST
RCA WHIRLPOOL • ROPER • SUNRAY
TAPPAN • THE BOSTON STOVE COMPANY
UNIVERSAL • VESTA
WEDGEWOOD-HOLLY • WELBILT

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No wonder...

Today more people than ever are cooking with GAS!

• This advertisement appeared in the following magazines: BUILDER TRADE, January, 1960; AMERICAN BUILDER, January 1960; HOUSE & HOME, February, 1960; PRACTICAL BUILDER, January, 1960; N. A. H. B. JOURNAL OF HOME BUILDING, January 1960

Microwave receiver at Columbia Gas System's Dranesville, Va., Measuring Station, is part of network scheduled for expansion

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SOME readers of the A. G. A. Monthly have wondered what is the Monthly's editorial policy, if any. For these readers, the answer is, yes, there is one, and, in a nutshell, here it is: first, to advise members of A. G. A. activities being carried on in their behalf; second, to advise readers of noteworthy activities of other member companies; and third, to report significant developments in the gas industry. . . . Coverage of the first and third categories, A. G. A. news and industry developments, necessarily depends largely on the alertness and industriousness of the Monthly's editorial staff. Stories in the second category, member company activities, must however originate with the companies concerned. . . . In the past, some of the Monthly's most interesting features have been among those sent in by member companies. In the present issue, we would like to call attention to the stories on Arkla's gas stations (page 15), Ohio Fuel Gas Company's school heating job page 16), East Ohio's "voice of Mr. Magoo" TV campaign (page 19), and Berkshire Gas Company's story on heating Norman Rockwell's studio (page 37). . . . Needless to say, the Monthly would like to hear from other member companies with good stories to tell and good pictures with which to illustrate them.

JAMES M. BEALL
DIRECTOR, PUBLIC INFORMATION

BERNARD KAAPCKE
EDITOR

RICHARD F. MULLIGAN
ART SUPERVISOR

SHARON HURLEY
NEWS EDITOR

EDITORIAL OFFICES:
AMERICAN GAS ASSOCIATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.

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VOL. 42 NO. 4

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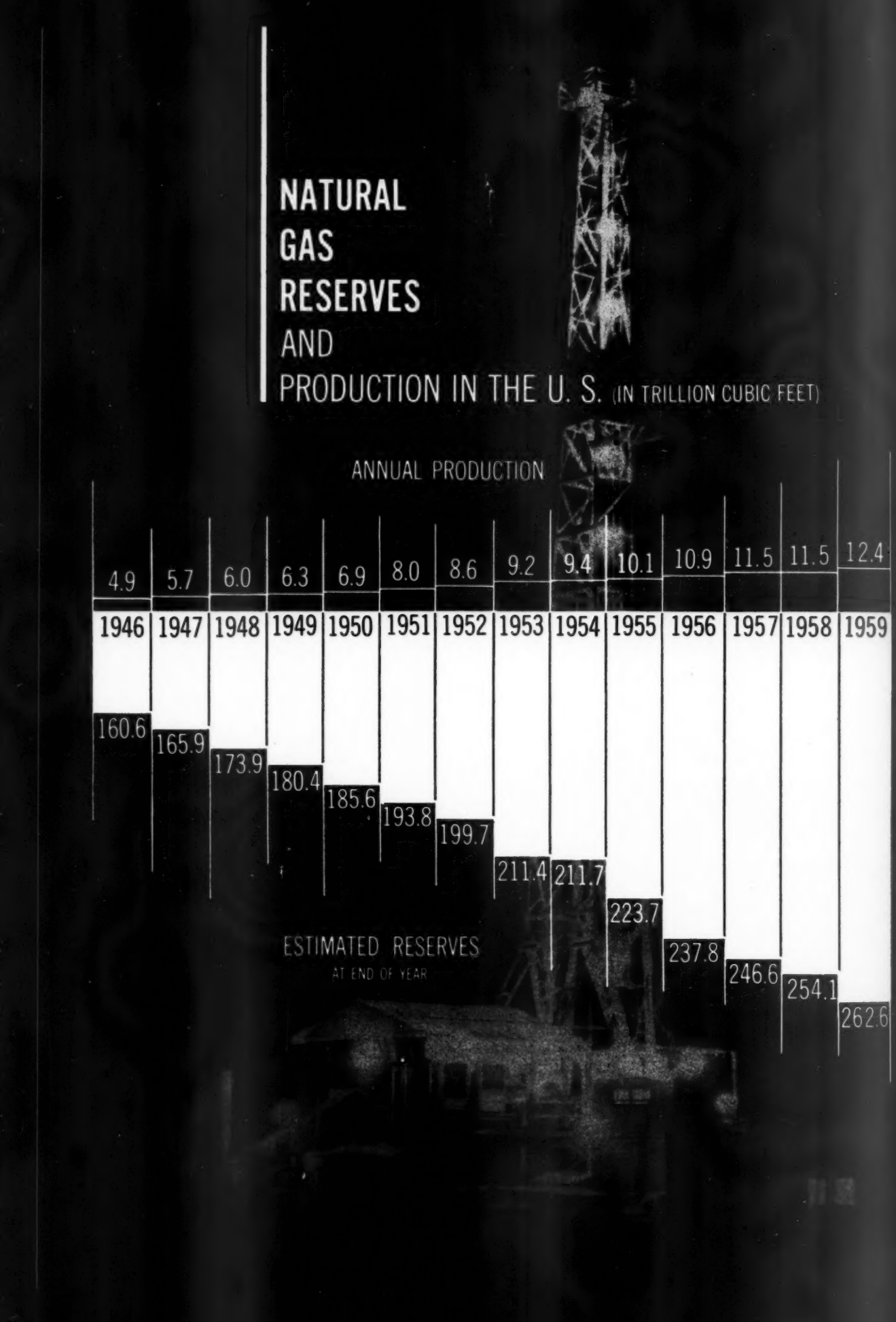
NATURAL
GAS
RESERVES
AND
PRODUCTION IN THE U. S. (IN TRILLION CUBIC FEET)
ANNUAL PRODUCTION
4.9
5.7
6.0
6.3
6.9
8.0
8.6
9.2
9.4
10.1
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11.5
11.5
12.4
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
160.6
165.9
173.9
180.4
185.6
193.8
199.7
211.4
211.7
223.7
237.8
246.6
254.1
262.6
ESTIMATED RESERVES
AT END OF YEAR

New discoveries of gas once more exceed annual production by a wide margin for net gain in total proved reserves

Reserves again at all-time high

Proved recoverable reserves of natural gas in the United States advanced to an all-time high of 262.6 trillion cubic feet in 1959, it has been announced in a report released jointly by the American Gas Association and the American Petroleum Institute.

A. G. A. notes that a net gain of nearly 8.5 trillion cubic feet was achieved during the year, even though net production in 1959 climbed to an all-time peak of 12.4 trillion cubic feet. The 1959 production figure exceeds 1958's production by nearly one trillion cubic feet.

Gross additions to reserves last year totaled nearly 20.9 trillion cubic feet, including newly discovered reserves of 5.8 trillion cubic feet and extensions and revisions of previous estimates amounting to more than 14.9 trillion cubic feet. New reserves discovered during the year were the third highest on record.

Texas and Louisiana, which account for more than two-thirds of the nation's proved recoverable natural gas reserves, showed the greatest increases last year. These states had a year-end combined total of 180.4 trillion cubic feet of gas.

Texas reserves in 1959 climbed by more than 5.4 trillion cubic feet to a new total of 120.5 trillion cubic feet. Louisiana's reserves advanced by 4.7 trillion cubic feet to a total of 59.9 trillion cubic feet.

The nation's estimated proved recoverable reserves have increased from 180.4 trillion cubic feet to 262.6 trillion cubic feet since 1949. This net gain of 82.2 trillion cubic feet was recorded despite rapidly increasing demands which resulted in total production of 98.6 trillion cubic feet during the same period.

A. G. A.'s report shows new discoveries of natural gas liquids reserves in 1959 totaled 109.5 million barrels, second highest in the industry's history. Estimated reserves at year's end totaled 6.5 billion barrels, an increase of more than 318 million barrels over the 1958 total.

Canada's natural gas reserves, reported annually by the Canadian Petroleum Association, advanced to a new high of 26.6 trillion cubic feet last year, compared with 23.3 trillion cubic feet in 1958. Net production of 498 billion cubic feet was reported against reserve additions of 3.3 trillion cubic feet.

Table 3 is a summary of the Committee's annual estimates of proved natural gas reserves for the past fifteen years, re-

COMMITTEE ON NATURAL GAS RESERVES

Ed Parkes (chairman), United Gas Corporation
J. R. Arrington, Humble Oil & Refining Company
W. F. Burke, Lone Star Gas Company
D. S. Colby, U. S. Bureau of Mines
R. O. Garrett, Texas Gas Exploration Corporation
B. B. Gibbs, Union Producing Company
J. V. Goodman, Equitable Gas Company
E. D. Pressler, Humble Oil & Refining Company
D. R. Scherer, Southern Natural Gas Company
C. E. Turner, Phillips Petroleum Company
M. T. Whitaker, Socony Mobil Oil Company, Inc.
A. H. Wieder, Shell Oil Company
Daniel Parson (secretary), American Gas Association

flecting the changes in the natural gas reserve position in the United States during each of the fourteen years since December 31, 1945. Table 4 shows the proved natural gas liquids reserves of the United States for the last fourteen years, and the changes which have taken place in these reserves annually since the first estimate was made as of December 31, 1946.

In order to arrive at an estimate of the total proved liquid hydrocarbon reserves in the United States, the reserves of natural gas liquids shown in Table 2 have been added to the reserves of crude oil estimated by the Committee on Petroleum Reserves of the American Petroleum Institute. The total liquid hydrocarbon reserves are shown in Table 4 of the report of the Committee on Petroleum Reserves.

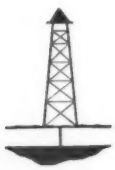
The Committee has continued the practice, begun in the report of December 31, 1948, of reporting as a part of the proved reserves, the volume of gas in underground storage reservoirs. Since December 31, 1953, these figures have been based on data furnished by the Committee on Underground Storage of the American Gas Association. Prior to the report of December 31, 1953, the native gas remaining in a storage reservoir when injection began was classified and listed, for the most part, as a nonassociated natural gas reserve and was not included in the underground storage figure. Beginning with the December 31, 1953 report, all gas, including native and stored gas, is included in the underground storage figures. Adjustments in, withdrawals from, or additions to storage are included in the figures shown under the heading "Net Change in Underground Storage." Net gas production is the gross production from producing reservoirs less that gas returned to producing reservoirs in cycling and repressuring. Gas withdrawn from storage is not considered as production; likewise no reduction in the "Net Gas Production" has been made for that part of such production which was injected into underground storage reservoirs.

In view of the great diversity of pressure bases specified by different jurisdictions throughout the United States, attention is drawn to the fact that natural gas reserves estimates published in this and previous reports of this Committee have been based on standard conditions of 14.65 psia and 60° F.

The Committee wishes to point out that it is often not possible to estimate the total reserves of a field in the year of its discovery. Satisfactory estimates can be made only after there has been sufficient drilling in the fields and, in some cases, adequate production history established. For these reasons, the reserves listed as discovered during any current year must be considered only as the reserves indicated by the drilling in that year. The reserves of all fields and pools are reviewed and revised upward or downward in each succeeding annual report to reflect additional information on preceding estimates. These changes are shown as "Extensions and Revisions."

The procedure followed in estimating and assembling the proved reserves figures is the same as that used in the past reports. A proved reserve may be in either the drilled or undrilled portion of a given field. When the undrilled area is considered proved, it is so related to the developed acreage and the known field geology and structure that its productive ability is considered assured. Proved recoverable reserves of natural gas are those reserves estimated to be producible under present operating practices, with no consideration being given to their ultimate use. Since the estimates are made by pools, the recovery factors or abandonment pressures used in the calculations are governed by the operating conditions

(Continued on page 6)



NATURAL GAS RESERVES

(Thousands of Cubic Feet—14.65 psia, at 60°F.)

Total proved reserves as of Dec. 31, 1958		254,142,037,000
Extensions and revisions of previous estimate during the year of 1959	14,933,109,000	
New reserve discovered in 1959	5,800,749,000	
Net changes in underground storage during 1959	161,326,000	
Total proved reserves added and net changes in underground storage during 1959		20,895,184,000
Total proved reserves as of Dec. 31, 1958, and additions during 1959		275,037,221,000
Deduct production during 1959		12,440,628,000
Total proved reserves of natural gas as of Dec. 31, 1959		262,596,593,000

Reserves data are shown by states in Table 1.

NATURAL GAS LIQUIDS RESERVES

(Barrels of 42 U. S. gallons)

Total proved reserves as of Dec. 31, 1958		6,204,018,000
Extensions and revisions of previous estimate during the year of 1959	593,905,000	
New reserves discovered in 1959	109,539,000	
Total proved reserves added in 1959		703,444,000
Total proved reserves as of Dec. 31, 1958 and new proved reserves added in 1959		6,907,462,000
Deduct production during 1959		385,154,000
Total proved reserves of natural gas liquids as of Dec. 31, 1959		6,522,308,000

Reserves data are shown by states in Table 2.

TABLE 1

ESTIMATED PROVED RECOVERABLE RESERVES OF NATURAL GAS IN THE UNITED STATES

(Millions of cubic feet—14.65 psia, at 60°F.)

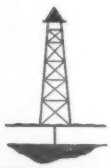
	Changes in reserves during 1959					Reserves[b] as of Dec. 31, 1959				
	Reserves as of Dec. 31, 1958[b] (1)	Extensions and Revisions[b] (2)	Discoveries of New Fields and New Pools in Old Fields[b] (3)	Net Change in Underground Storage[c] (4)	Net Production[d] (5)	Total (Columns 7 + 8 + 9 + 10, also Columns 1 + 2 + 3 + 4 less Column 5) (6)	Non-Associated[e] (7)	Associated[f] (8)	Dissolved[g] (9)	Underground Storage[h] (10)
Arkansas	1,388,337	38,634	60,981	(—)41	65,094	1,422,817	929,225	288,939	199,822	4,831
California[i]	8,966,522	39,321	56,230	(—)2,787	465,839	8,593,447	2,155,750	2,011,601	4,335,078	91,018
Colorado	2,349,240	236,396	26,266	164	115,907	2,496,159	1,839,459	96,175	560,361	164
Illinois	170,528	11,655	279	11,112	18,464	175,110	11,089	0	118,881	45,140
Indiana	30,569	4,682	186	3,444	3,793	35,088	1,300	1,350	22,185	10,253
Kansas	20,233,847	279,359	97,365	9,895	639,063	19,981,403	19,155,537	407,100	356,064	62,702
Kentucky	1,215,329	(—)4,467	12,810	3,709	68,000	1,159,381	1,059,322	0	75,866	24,193
Louisiana[i]	55,111,862	6,100,270	1,509,830	0	2,868,042	59,853,920	48,135,211	8,248,993	3,469,716	0
Michigan	498,113	17,877	5,400	13,442	19,429	515,403	116,255	55,159	58,730	285,259
Mississippi	2,598,377	(—)16,750	68,031	1,571	164,705	2,486,524	1,805,406	372,200	303,380	5,538
Montana	682,013	(—)3,155	14,358	3,691	31,416	665,491	494,850	38,863	90,721	41,057
Nebraska	143,321	2,623	238	0	13,463	132,719	99,249	12,609	20,861	0
New Mexico	21,180,020	(—)2,758,846	196,341	(—)2,203	702,514	17,912,798	12,722,502	3,524,188	1,618,367	47,741
New York	96,439	8,925	1,575	3,717	4,137	106,519	48,801	0	158	57,560
North Dakota	1,124,470	97,481	0	0	15,409	1,206,542	9,997	340,498	856,047	0
Ohio	818,052	(—)60,859	11,170	16,714	36,311	748,766	325,000	0	87,000	336,766
Oklahoma	15,206,769	1,878,770	510,753	11,096	956,096	16,651,292	11,097,644	1,991,355	3,456,676	105,617
Pennsylvania	870,014	217,298	35,180	48,342	118,862	1,051,972	622,676	0	25,040	404,256
Texas[i]	115,045,743	8,228,792	2,887,699	5,004	5,691,455	120,475,783	78,166,487	26,932,160	15,332,872	44,264
Utah	1,058,051	176,088	74,372	0	44,261	1,264,250	799,877	25,640	438,733	0
Virginia	38,421	2,125	375	0	2,289	38,632	38,632	0	0	0
West Virginia	1,557,633	174,386	33,000	14,532	186,000	1,593,551	1,270,624	0	64,633	258,294
Wyoming	3,649,818	254,558	145,434	(—)102	202,644	3,847,064	3,156,424	155,890	514,326	20,424
Miscellaneous[a]	108,549	7,946	52,876	20,026	7,435	181,962	109,170	0	16,673	56,119
TOTAL	254,142,037	14,933,109	5,800,749	161,326	12,440,628	262,596,593	184,170,487	44,502,720	32,022,190	1,901,196

[a] Includes Alabama, Alaska, Arizona, Florida, Iowa, Maryland and Missouri.
[b] Excludes gas loss due to natural gas liquids recovery.
[c] The net difference between gas stored in and gas withdrawn from underground storage reservoirs, inclusive of adjustments and native gas transferred from other reserves categories.
[d] Net production equals gross withdrawals less gas injected into producing reservoirs. Changes in underground storage and gas loss due to natural gas liquids recovery are excluded. Fourth quarter production estimated in some instances.
[e] Non-associated gas is free gas not in contact with crude oil in the reservoir; and free gas in contact with oil where the production of such gas is not significantly affected by the production of crude oil.
[f] Associated gas is free gas in contact with crude oil in the reservoir where the production of such gas is significantly affected by the production of crude oil.
[g] Dissolved gas is gas in solution with crude oil in the reservoirs.
[h] Gas held in underground reservoirs (including native and net injected gas) for storage purposes.
[i] Includes off-shore reserves.

TABLE 2

ESTIMATED PROVED RECOVERABLE RESERVES OF NATURAL GAS LIQUIDS IN THE UNITED STATES

(Thousands of Barrels of 42 U. S. Gallons)



	Changes in reserves during 1959				Reserves as of Dec. 31, 1959			
	Reserves as of Dec. 31, 1958 (1)	Extensions and Revisions (2)	Discoveries of New Fields and New Pools in Old Fields (3)	Net Production (4)	Total (Columns 6 + 7 + 8, also Columns 1 + 2 + 3 Less Column 4) (5)	Non-Associated (6)	Associated (7)	Dissolved (8)
Arkansas	34,150	148	302	2,583	32,017	4,646	17,333	10,038
California[d]	302,319	51,572	535	29,108	325,318	0	106,274	219,044
Colorado	21,268	7,273	78	3,705	24,914	7,095	1,974	15,845
Illinois	10,950	111	1,250	1,557	10,754	55	0	10,699
Indiana	119	23	1	19	124	6	7	111
Kansas	199,552	3,210	623	6,473	196,912	185,057	7,666	4,189
Kentucky	37,472	13,612	1,492	3,286	49,290	49,290[c]	0	0
Louisiana[d]	1,195,955	203,094	32,201	73,452	1,357,798	1,107,916	210,448	39,434
Michigan	1,502	189	27	156	1,562	581	276	705
Mississippi	55,182	(—)12,286	721	2,673	40,944	26,301	8,272	6,371
Montana	7,497	6,667	0	653	13,511	1,861	0	11,650
Nebraska	5,699	516	0	783	5,432	4,011	618	803
New Mexico	417,238	16,004	8,886	19,088	423,040	285,377	39,492	98,171
North Dakota	31,239	68,108	0	1,419	97,928	0	16,400	81,528
Ohio	1,618	(—)314	0	0	1,304	1,304[c]	0	0
Oklahoma	357,507	34,481	3,900	28,319	367,569	149,407	52,914	165,248
Pennsylvania	3,685	40	20	68	3,677	3,677[c]	0	0
Texas[d]	3,391,967	184,496	57,225	203,313	3,430,375	1,527,089	619,532	1,283,754
Utah	14,899	17,948	0	471	32,376	133	0	32,243
West Virginia	63,286	(—)28,185	2,171	3,106	34,166	34,166[c]	0	0
Wyoming	50,876	27,215	107	4,919	73,279	29,943	1,294	42,042
Miscellaneous[b]	38	(—)17	0	3	18	0	0	18
TOTAL	6,204,018	593,905	109,539	385,154	6,522,308	3,417,915	1,082,500	2,021,893

[a] Includes condensate, natural gasoline and liquefied petroleum gas.
[b] Includes Alabama, Florida and Missouri.
[c] Not allocated by types but occurring principally in the column shown.
[d] Includes off-shore reserves.

TABLE 3
SUMMARY OF ANNUAL ESTIMATES OF NATURAL GAS RESERVES FOR PERIOD DEC. 31, 1945, TO DEC. 31, 1959

(Millions of cubic feet—14.65 psia, at 60°F.)

Year	Natural Gas Added During Year: Extensions and Revisions	Natural Gas Added During Year: Discoveries of New Fields and New Pools in Old Fields	Natural Gas Added During Year: Total of Discoveries, Revisions and Extensions	Net Change in Underground Storage	Net Production During Year	Estimated Proved Reserves as of End of Year	Increase Over Previous Year
1945	—	—	—	—	—	147,789,367	—
1946	a	a	17,729,152	a	4,942,617	160,575,901	12,786,534
1947	7,570,654	3,410,170	10,980,824	a	5,629,811	165,926,914	5,351,013
1948	9,769,483	4,129,089	13,898,572	51,482	6,007,628	173,869,340	7,942,426
1949	8,061,429	4,612,870	12,674,299	82,746	6,245,041	180,381,344	6,512,004
1950	9,172,381	2,877,351	12,049,732	54,301	6,892,678	185,592,699	5,211,355
1951	13,013,606	3,039,385	16,052,991	132,751	7,966,941	193,811,500	8,218,801
1952	8,934,470	5,411,043	14,345,513	198,850	8,639,638	199,716,225	5,904,725
1953	13,371,355	7,081,661	20,453,016	516,431[b]	9,238,540	211,447,132	11,730,907
1954	4,632,309	4,966,894	9,599,203	90,906	9,426,509	211,710,732	263,600
1955	16,298,125	5,719,069	22,017,194	87,637	10,118,118	223,697,445	11,986,713
1956	19,214,604	5,636,476	24,851,080	133,970	10,907,926	237,774,569	14,077,124
1957	11,118,319	8,998,993	20,117,312	179,733	11,502,359	246,569,255	8,794,686
1958	13,388,808	5,611,098	18,999,906	57,902	11,485,026	254,142,037	7,572,782
1959	14,933,109	5,800,749	20,733,858	161,326	12,440,628	262,596,593	8,454,556

a Not estimated.
b All native gas in storage reservoirs formerly classified as natural gas reserve is included in this figure.

TABLE 4
SUMMARY OF ANNUAL ESTIMATES OF NATURAL GAS LIQUIDS RESERVES FOR PERIOD DEC. 31, 1946, TO DEC. 31, 1959

(Thousands of barrels of 42 U. S. gallons)

Year	Natural Gas Liquids Added During Year: Extensions and Revisions	Natural Gas Liquids Added During Year: Discoveries of New Fields and New Pools in Old Fields	Natural Gas Liquids Added During Year: Total of Discoveries, Revisions and Extensions	Net Production During Year	Estimated Proved Reserves as of End of Year	Increase Over Previous Year
1946	—	—	—	129,262	3,163,219	—
1947	192,237	59,301	251,538	160,782	3,253,975	90,756
1948	405,874	64,683	470,557	183,749	3,540,783	286,808
1949	294,211	92,565	386,776	198,547	3,729,012	188,229
1950	707,879	58,183	766,062	227,411	4,267,663	538,651
1951	648,497	75,494	723,991	267,052	4,724,602	456,939
1952	475,170	81,668	556,838	284,789	4,996,651	272,049
1953	648,047	95,922	743,969	302,698	5,437,922	441,271
1954	20,830	86,520	107,350	300,815	5,244,457	(—)193,465
1955	447,160	67,348	514,508	320,400	5,438,565	194,108
1956	715,764	94,056	809,820	346,053	5,902,332	463,767
1957	8,884	128,508	137,392	352,364	5,687,360	(—)214,972
1958	749,956	108,250	858,206	341,548	6,204,018	516,658
1959	593,905	109,539	703,444	385,154	6,522,308	318,290

in each individual pool. Proved recoverable reserves of natural gas liquids are those contained in the recoverable gas reserve subject to being produced as natural gas liquids by separators or extraction plants, now in operation, under construction or planned for the immediate future. For purposes of developing reserve estimates, natural gas liquids are defined as those hydrocarbon liquids which, in the reservoir, are either gaseous or in solution with crude oil and which are recoverable as liquids by the processes of condensation or absorption which take place in field separators, scrubbers, gasoline plants, or cycling plants. Natural gasoline, condensate, and liquefied petroleum gases fall in this category. While the liquids so collected and the products derived from them in some of the modern plants are known by a variety of names, they have been grouped together here under the genral heading "Natural Gas Liquids."

The estimates presented in this report incorporate the results of carefully detailed studies of many hundreds of fields and pools throughout the United States. Their preparation has required the help and active cooperation of specially trained geologists and engineers familiar with developments in all producing areas throughout the country. The Committee is fortunate to have obtained the help of the group of men who have served as subcommittee members. As in past years, they have given generously of their time and efforts to make these estimates as complete and accurate as possible. The Committee expresses its appreciation to these men.

The Committee also acknowledges the helpful cooperation of the Committee on Petroleum Reserves of the American Petroleum Institute, on whose estimates of crude oil reserves the estimates of dissolved gas reserves are based, and the Committee on Underground Storage of the American Gas Association, who supplied the data on which the underground storage figures are based.

Finance, regulation, growth are among subjects at General Management Conference

Conference surveys top-level topics

Problems in utility financing, rate regulation, technical improvements within the industry, and executive development programs were among subjects dealt with by an imposing array of speakers at the General Management Section Conference in Pittsburgh, Pa., last month.

Addressing the approximately 300 delegates at the Monday morning session, James N. Land, senior vice-president of the Mellon National Bank and Trust Co., Pittsburgh, analysed future trends in public utility financing. He emphasized that current interest rates were not "excessively" high. In his analysis, interest rates were simply returning to pre 1930 levels.

Tracing interest rates over a period of years, he pointed out that lows over the past three decades had created a feeling that this was normal.

Reasons for the decline in bond yields in the 1930's and the depth of the decline in the 1940's were attributed by Mr. Land to a "greatly reduced willingness to borrow, stemming in large part from painful lessons learned during the Great Depression and an immense increase in the country's gold holdings and consequently in the amount of money that the banking system was in a position to create."

The situation today is exactly the opposite, according to Mr. Land.

"Confidence is high and is producing insistent borrowing demands exceeding the flow of saved money."

In other words we have now returned to a more normal situation.

"The low interest rates of the 30's were a strange interlude due to a most unusual combination of circumstances and therefore are no criterion for future forecasts," Mr. Land stated.

Chairman Otto W. Manz, Jr., left, and vice-chairman Gordon C. Griswold, right, General Management Section, chat with A. G. A. President Wister H. Ligon. Mr. Ligon spoke at conference luncheon

The significance of interest trends for the gas industry were summarized by Mr. Land in his predictions for the 60's.

"I think that interest rates in the 1960's will continue to fluctuate up and down with the phases of business cycle as they have in the 1950's, but the general trend of the fluctuations is more apt to be level or somewhat upward. If a company is faced with the necessity of doing bond financing sometime this year, it would be well advised in my opinion to put itself in a position to move as quickly as possible and then seek to avail itself of any interval of strength in the bond market to get the financing done."

In a related talk during the conference, Jerome C. Hunsaker, Jr., vice-president, The Colonial Fund, Inc., and Colonial Energy Shares, Inc., explained how the gas industry could obtain better investor acceptance, easing the burden of financing expansion.

Linking his discussion with the competitive factors in the gas industry, and in the securities market, he suggested that "management should be directed to get all of the business possible, to ensure adequate supplies and to do all this so as to bring down growth to per share results."

Speaking as a professional investor, Mr. Hunsaker stated that "it is the goal

of management to achieve a record of steady annual increases in per share earning and dividends. Such a record will be reflected in ease of financing at both the equity and debt levels and in good service."

To accomplish these ends, he enumerated seven key opportunities available to the natural gas industry.

These major areas for development are: growth of the industry, new markets; new appliances; improved rate regulation; economic advantages of new storage for peak shaving; control of gas reserves; and increased investor acceptance.

Echoing the growth potential theme for the industry, Sam H. Schurr, director, Energy and Mineral Resources program, Resources for the Future, Inc., predicted that the consumption of gas will continue to claim a larger part of the energy market.

Projecting into the future, his report indicated that direct home gas consumption will rise to 61.1 per cent of the total fuel energy used in homes by 1975.

Other sections of Mr. Schurr's paper dealt with energy materials in general, coal oil, natural gas, and their interrelationships.

During the talk he stressed the irregular growth of energy consumption in this country. "Common sense ideas about regularity in the growth of energy consumption either as a function of the passage of time or as related to population growth or the growth of national product are erroneous. Such relationships, therefore, do not provide a solid basis for projecting the future total consumption of energy."

During the second day's session, Edward T. Lebens, vice president, The First Boston Corporation, discussed the stock market as a medium for gas utility financing. He traced the gas industry's history in the stock market, and made comparisons with competitive sources of energy and their corporate financing.

Stressing the generally favorable market for preferred stocks, Mr. Lebens stated, "I think one reason that gas companies have been slow to use preferred stock has been the wide acceptance of the wasting asset concept which has led the majority of investors to insist on sinking funds in preferred stock issues and the reluctance of issuers to face this situation. This brings to mind what in my opinion is one of the toughest jobs the gas industry has with the investing public. That is to overcome the idea that the industry will be out of business some day in the foreseeable future."

Building the corporate image which will materially aid the gas industry in destroying this idea was the subject of Randall Klemme, vice president, Marketing, Research and Area Development, Northern Natural Gas Company of Omaha. Mr. Klemme outlined the need for area development in an orderly manner. "From the standpoint of cost of service we have a very real stake in the orderly development of the communities which we serve," he stated.

Continuing with this theme, he urged close cooperation between utilities and local communities. In conclusion he pointed out three basic functions to insure effective programs in area development. First, is research for comprehensive knowledge of the community's resources. Second, is assistance in internal development, and third, industrial promotion. In summing up, Mr. Klemme stated, "Given intelligent direction through farsighted management, the area development activities of gas utilities will continue to contribute to the total development of our industry."

The competitive features of gas as the fuel energy of the future home were described by Wister H. Ligon, president of the American Gas Association and Nashville Gas Co.

In the keynote speech for the conference Mr. Ligon reported that "while the industry faces an unparalleled potential for both physical and economic growth during the next 10 years, this does not assure automatic prosperity."

Referring to the 60's as the "Decisive Decade" he stated that the surest course lies in building upon firm foun-

Wednesday speakers were, from left, Jerome C. Hunsaker, Jr., Sam H. Schurr, and Justin R. Wolf. Mr. Wolf addressed Wednesday luncheon

Paul Jacobs, Jr., left, introduced Ing. Antonio G. Rojas and his assistant Eliseo Gonzales, right. Sr. Rojas spoke on Tuesday

dations established in 1959 and in doing so at once.

"Technical progress throughout the industry is opening up widened and entirely new fields of gas utilization," he said. "Together with the nation's growth in both population and energy needs this will create a demand for more and more gas."

Cited by Mr. Ligon were the Gold Star gas range promotion, the Blue Star Home program to promote construction of gas equipped homes, expanded activities in gas industry research and development and increased emphasis on public relations to win customer understanding and support of the gas industry.

tributing system's future design. Nearly all of the major utilities have some propane-air capacity, but the problems of interchangeability and gravity limits its use."

During the talk he pointed out that large liquefaction plants result in substantial savings over peak shaving costs through purchases from transmission lines.

In conclusion, he emphasized that: "liquefied natural gas storage is not for the small distributing utility as a minimum size plant for economical operation will be in the $3,000,000 range. Sufficient size site or remote area is necessary regardless of the storage used. Materials, equipment and designs must

the increasing problem of peak shaving.

Contrasting today's load problems with the manufactured gas days, he said: "In the old manufactured days, if production facilities were adequate to meet the maximum day, it did not matter too much how many such days there were during the winter. The higher the degree days the more gas was made that year. But, with storage there is a winter quantity to be considered as well as a daily quantity—and once that is gone there is no more."

Outlining the first set of plans for the construction of a liquefaction plant with a capacity of 6 million cubic feet per day, storage of 1 billion cubic feet and a regasification rate of 150 million

Speakers at Monday morning general session included, from left, Donald B. Beecher, James N. Land, Otto W. Manz, Jr., James L. Hayes

With Gordon C. Griswold, in charge of conference arrangements, are Tuesday speakers Michael Anuskiewicz, Jr., left, A. Russell Young

In a combined report on the peak shaving problem within the gas industry, A. Russel Young, vice-president, J. F. Pritchard Co., and Constock-Pritchard Liquefaction Corp., spoke on the suppliers problem and Michael Anuskiewicz, Jr., assistant chief engineer, Brooklyn Union Gas Co., spoke on the distribution company's view.

Mr. Young first discussed the conclusions and brought up to date the results of his company's activities in the liquefaction and storage of natural gas. In his report he stated: "The utilization of light oil products such as liquefied propane and butane stored for vaporization and diluting with air to meet peak loads, should be part of any distribution system's future design. Nearly all of the major utilities have some propane-air capacity, but the problems of interchangeability and gravity limits its use."

be selected from the standpoint of good conservative engineering standards and not because they are cheaper. Even with this necessary conservative approach natural gas liquefaction and storage offers an economical means of meeting these costly short peaks and permitting substantial revenue growth."

In the second half of the report, Mr. Anuskiewicz gave an analysis of the study conducted by his company into the feasibility of liquefied natural gas storage.

Citing developments in The Brooklyn Union Gas Company since natural gas was first received, signing up interruptible customers to fill the summer valley, and customer growth, he pointed to

per day, he stated: "We have disclosed a number of interesting and disturbing facts. We have become aware of some of the ramifications of the problem and realize that practical considerations may require compromising what has been calculated to be the most economic operation."

In conclusion, he spoke on the transport of liquefied natural gas by ship. Using the Lake Charles, La., storage installation as an example of what has been accomplished in the storage of liquefied natural gas, Mr. Anuskiewicz said: "The feasibility of large storage tanks has been proven in the Lake Charles installation and on Canvey

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Boat shows, sack races, other kids' games, are good traffic builders

Huge market potential of suburban shopping centers is tapped by novel promotion

Suburbia is sales target in 'Easy Living' campaign

The nation's shoppers, in millions, have moved to Suburbia.

Canny merchants have moved with them. "Main Street, U. S. A.," has been replaced by "Center Mall, Suburban Shopping Center," as the new merchandise mecca.

Gas, too, is moving to Suburbia.

This year, from March to September, gas companies in areas served by 50 of the largest suburban shopping centers throughout the country are being urged to participate in nine-day "Easy Living" promotion campaigns especially designed to capture the interest—and the appliance dollars—of the shopping center crowds which represent today's outstanding business phenomenon.

In addition to the local gas companies invited to participate, gas appliance dealers in the shopping centers are being provided with complete tool kits for promotional tie-ins.

The national Easy Living campaign is being sponsored by *Redbook* magazine in cooperation with the 50 selected centers, for the benefit of advertisers including A. G. A. and major gas appliance manufacturers. An exclusive gas promotion in appliances, the campaign will gain in scope and excitement through joint participation of merchandisers in other non-competing fields.

The Easy Living theme, calculated to be sure-fire with leisure-conscious suburban householders and new-home owners, will run through all phases of the promotion. However, it is especially applicable to selling of convenient, modern gas appliances.

The development of the shopping center campaign by *Redbook* is an outgrowth of the magazine's editorial approach to the Young Adult market. The magazine points out that this is the same market as that served by the great regional shopping centers. The new families formed by these same young married couples and living in the suburbs likewise represent a prime market for gas service and appliances.

Market research figures show that the 50 selected shopping centers, located in the major populated areas of the country, currently account for more than $1.5 billion in retail sales each year, and serve more than 600,000 customers daily. With 1.4 million new homes now under construction, the suburban shopping centers offer a still greater potential in 1960.

To capture this market, promotion plans feature both center-wide activities and those concentrated specifically on gas and gas appliances.

Under the umbrella of the center-wide promotion, participants will benefit from such items as cooperative newspaper, radio and TV advertising, special

'Fish are jumpin',' and the living is easy at kids' fishing contest

The shopping center promotion provides an ideal stage for demonstrations of gas ranges, dryers, and other appliances

Style show is center-wide event attracting big crowds of housewives

newspaper sections and other publicity, display materials, and special events.

Topping the list of events nationally will be an all-expense-paid Hawaiian vacation for the winner of a "Typical Young Adult Family" contest.

At each center, local events may include other types of contests, drawings, children's games, county fair-type exhibits, sports exhibitions or other traffic-builders which may be devised.

Space for gas exhibits and demonstrations will be supplied in mall areas of the shopping centers.

Each gas company invited to participate is being furnished with a complete kit of promotional materials, plus a portfolio of suggested activities to dramatize gas displays.

Such gas exhibits and events may include model kitchens, cooking and laundry demonstrations, cooking contests, homemaking competitions, equipment parades, or other attention-getters as developed by the gas company. A prime opportunity is afforded for featuring of special sales inducements on gas appliances.

Also suggested are such ideas as relocating the kitchen planning service in the center, using gas trucks to carry posters, radio and TV coverage of interviews and contest awards, showing of gas films.

Promotional material being supplied to the gas utilities and gas appliance dealers includes a series of large display cards and 108-inch banners adaptable for window or wall mounting or for hanging from wires, and carrying the slogan, "A World of Easy Living With Gas."

To assist the local utilities, *Redbook* also is providing gas companies with advertising-publicity kits which include local advertising suggestions, with newspaper mat elements; radio scripts; direct mail ideas and sketches of possible tie-in displays; publicity ideas including newspaper releases; suggested visuals for TV; and a series of the suggested Easy Living events for gas companies.

Campaigns at each shopping center are being supervised by a special *Redbook* travelling staff. These coordinators will be on hand three days prior to the promotion opening at each center, to provide any necessary assistance to participants.

Scheduling of the national Easy Living campaign has been planned so as to achieve the best possible timing and weather conditions in each locality. The initial promotions began in the Southeast in March, and will terminate in the Indiana-Ohio area in September.

Further information about gas industry participation in the Easy Living campaign may be obtained from the A. G. A. Gas Home Bureau.

A. G. A. releases research report on gas burners

A new research report has been released by A. G. A. entitled "Relations of Fundamental Flashback, Blowoff and Yellow-Tip Limits of Fuel Gas-Air Mixtures to Design Factors of Burners in Gas Appliances." In this publication, the authors, J. Grumer, M. E. Harris, and V. R. Rowe of the Bureau of Mines, U. S. Department of the Interior, Pittsburgh, Pa., summarize an investigation of interactions of flames and the environment provided by gas-appliance burners. The work is an extension of an earlier study by the same authors concentrating on flame characteristics: Bureau of Mines Report of Investigations 5225, July 1956, "Fundamental Flashback, Blowoff, and Yellow-Tip Limits of Fuel Gas-Air Mixtures."

Both studies are PAR projects. The present project was sponsored by the Committee on Domestic Gas Research through the Technical Advisory Group for General Utilization Research, PAR Research Project PDC-3-GU(Ext.), and was performed by the Explosives Research Laboratory of the Bureau.

The primary purpose of the study was to find whether the flashback, blowoff, and yellow-tip limits of flames determined on monoports in still air could be used to evaluate flame characteristics of burners in gas appliances, particularly multiport burners.

The fundamental flashback, blowoff, and yellow-tip limits of fuel gas-air mixtures were shown to apply to the operation of gas-appliance burners. Multiport burners manifested the fundamental limits of the mixture they were burning, but the flow characteristics into and through short flame ports connected to a common manifold were more complex than hitherto realized. Suitable accounting was made for these differences (appliance factors) mostly on the basis that there were inherent fluctuations in the flow and that flame piloting may or may not occur. A set of coefficients of flow was developed to correlate the flashback and blowoff limits with comparable limits for monoports. The figure presented in this review indicates the degree of correlation for a variety of arrangements of ports, diameters, and separations of ports. Other considerations apply to yellow-tip limits, namely that the yellow-tip limit of a multiport is about the same as

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Meet your Association staff

H. D. (Pat) Nicholson

One of those rarities in his state, a real native Californian, H. D. (Pat) Nicholson was born and raised in the heart of Hollywood, where today he directs gas appliance representation in motion pictures and TV, as manager of A. G. A.'s Hollywood Bureau.

Pat's activities are not confined to Hollywood, however. He also enjoys the title of A. G. A. Regional Promotion Manager, and as such he covers the Pacific Coast Gas Association territory for the Field Representative program.

Ever since his graduation from the University of Redlands in California, Pat has been associated with the gas industry. Beginning his career with Southern California Gas Company, he worked first in Customer Service Training, then in Sales and Dealer Training. He donned Navy blues for a stint with the U. S. Navy as an officer during World War II, and was discharged as a full Lieutenant. Returning to the gas industry in 1946, he has since devoted full-time to the Hollywood Bureau and other A. G. A. activities, on loan from Southern California Gas Company.

The triumvirate of Pat, his assistant Earl Rogers, and his secretary, Jean Kervin, have built the activities of the Hollywood Bureau from a wartime standstill to its present domination of the field on appliance "breaks" in movies and television. The Bureau's aim is to keep topping itself, in the face of tough electrical competition. Pat says the Bureau's success is due to plain hard work, attention to details, and follow-up.

When not making the rounds of the studios, Pat covers the PCGA territory for A. G. A. with the same momentum that has rolled up successes for the Hollywood Bureau. His office has become a Western information center for companies and individuals in his area seeking help on various A. G. A. programs and PAR activities.

Pat lives in the Toluca Lake section of North Hollywood, and with his wife, Margaret, enjoys the Californian's luxury of year-round gardening. Taking full advantage of the mild climate, the Nicholsons grow fruit trees and semi-tropical camellias and azaleas, as well as roses.

Pat is a sports fan, who also has played on the University of Redlands football and basketball teams, and on Los Angeles Athletic Club handball teams. Today, he puts in spare moments on the fairways, where his toughest competition, as on the job, is his own score.

Pat is often queried about his name, especially since his initials are H. D. "No mystery," he says, "it started when I was born—on St. Patrick's Day!"

Convention opportunities beckon

A. G. A.'s 1960 packaged Convention and "Festival of Flame" Exhibit offer the opportunity to learn first-hand what is ahead for the gas industry in appliances, communications, sales, operations, research, finance, management and many other vital areas.

Thousands of gas industry executives are planning to take advantage of the following opportunities in Atlantic City, October 9-12:

- Opportunity to study actual demonstrations of more than 75 of the latest new technical developments in residential, industrial and commercial gas appliances and equipment.
- Opportunity to study new developments which utility companies themselves have made to save money, conserve manpower and improve customer service. These include new stystems, methods, procedures, tools and devices.
- Opportunity to become acquainted with the actual equipment and control devices used in all areas of gas operations, from exploration to the burner tip of the ultimate consumer. This section of the "Festival of Flame" will be a spectacular display sponsored by the A. G. A. Operating Section.
- Opportunity to view significant new developments of the gas industry's national PAR Research Program.
- Opportunity to visit a "Parade" of the latest magazine-designed New Freedom Gas Kitchens and Laundries.

All of these and many other opportunities are offered by the "Festival of Flame" Exhibit which is expected to occupy the entire floor of the Atlantic City Exhibit Hall.

The Convention and Exhibit package will offer many educational opportunities to members of the gas industry. Nationally known speakers will describe in detail what lies ahead for the gas industry in the "Soaring Sixties." They will discuss the industry's progress and problems, its long rang goals, and its relationships with other segments of the economy.

The Convention and Exhibit package is being designed to recharge enthusiasms so that delegates will renew their efforts in the year ahead. There will be opportunities unlimited for gas industry people to discuss problems and to compare new methods and practices. There will also be numerous opportunities for making valuable business contacts.

In keeping with the General Convention Committee's plans for a packaged Convention and Exhibit, arrangements are being made to set up a special Gas Industry restaurant in the Atlantic City Exhibit Hall. Beverage service will be available during luncheon hours and everything possible will be done so that delegates and their wives can spend the entire day at the Convention and "Festival of Flame."

Many gas company presidents require that their employees who attend the A. G. A. Convention submit written reports describing what they have learned. One president recently came up with a startling conclusion:

A minimum of 30 manhours at the "Festival of Flame" Exhibit are required in order for his company people to digest the gas appliance developments and the operating practices shown!

This calculation is based on the fact

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A. G. A. CONVENTION TIME TABLE

Sunday, October 9

12 Noon	Grand opening "Festival of Flame" Exhibit
12 Noon—2:00 pm	"Dutch treat" luncheon for Delegates and Ladies—Exhibit Restaurant
5:00 pm	"Festival of Flame" closes

Monday, October 10

9:45 am—12 Noon	General Session
12 Noon—2:00 pm	"Dutch treat" luncheon for Delegates and Ladies—Exhibit Restaurant
12 Noon—5:00 pm	"Festival of Flame" Exhibit
2:00 pm	Sectional and Home Service Meetings—Convention Hall
8:30 pm	President's Reception, Entertainment and Dance

Tuesday, October 11

8:00 am	Home Service Breakfast
9:45 am—12 Noon	General Session
12 Noon—2:00 pm	"Dutch treat" luncheon for Delegates—Exhibit Restaurant
12 Noon—5:00 pm	"Festival of Flame" Exhibit
1:00 pm	Ladies Luncheon and Party
2:00 pm—3:00 pm	"Gasarama"

Wednesday, October 12

9:45 am—12 Noon	General Session
12 Noon—12:30 pm	Executive Session
12 Noon—5:00 pm	"Festival of Flame" Exhibit
12:30 pm—2:30 pm	Convention General Luncheon—Convention Hall

Industrial relations round table

Prepared by
A. G. A. Personnel Committee

Edited by W. T. Simmons
Assistant Personnel Manager
Philadelphia Electric Co.

● **Management's five top problems**—Harold Wilmot in the issue of *Business* for December, 1959, stated that in the world of management it is lonely at the summit. The burdens a man carries there are heavy ones.

First, he must think. A man of action must turn from the bustle of activity to initiate and evaluate plans for the future. He must think of things to be done and how they may be done, but he is not allowed the satisfaction of doing them. Second, he must manage. To do this, he must have knowledge, experience, decision, and authority. He must learn discipline and accept the burden of disciplining others.

Third, he must inspire. This is the essence of leadership. To arouse enthusiasm in others he must have it himself. He must master communication, so his presence, authority, and enthusiasm circulate through the organization like blood through a living body. Fourth, he carries the burden of reward and punishment. To fulfill these duties he must be mature, knowledgeable, logical, calm, and impersonal. Finally, he must be able to replace. Looking to the future, he must see the need for constant renewal and improvement, so the quality of management and the quality of the candidates for his own position is consistently high.

● **Make the most of your reading time**—In the January, 1960, *The American Salesman*, A. R. Dodd and Paul Rawlings stated that most businessmen who complain they cannot find time to do the reading they should are guilty of wasting much of it. Here are some ideas to help you: First, screen reading matter before you sit down to read. Decide what is urgent, what can be deferred, and what can be tossed in the wastebasket. Second, learn to pinpoint useful information and skim over the rest. Third, set apart items to be read in odd moments. Finally, avoid the trap of habit reading. Check the material you customarily read to see if you waste time on items and departments no longer of use to you. Remember that unless you have a photographic memory you cannot use your mind for a filing cabinet. Make a practice of actually filing useful information—brochures, magazine articles, etc.—in folders where they will be accessible. After all, an expert is just a person who knows where to find information.

● **Ways to get cheerful cooperation**—William Ruchti in the December, 1959, issue of *Supervisory Management* said that employees think cooperatively only in a constructive climate. He offered eight ways to contribute toward the creation of such an atmosphere: (1) Look for the good points in every idea, (2) try to find ways to make an idea work, (3) investigate all proposals, (4) meet people halfway, (5) let the other person identify his own mistakes, (6) look to future action; don't dwell on past mistakes, (7) recognize the successes of others, (8) try to defeat negative thinking in yourself and others.

● **What workers want**—The differences between supervisors and their men are not as large as some supervisors think, concluded Social Researcher Robert L. Kahn of the University of Michigan. First-line supervisors commonly overestimate the importance of high wages to their men. He said that they also underestimate their workers' desire for good interpersonal relations on the job. Much the same pattern prevails between first-line foremen and general foremen.

In reality foremen and their workers want much the same things from their jobs, said Mr. Kahn. They want steady work and steady wages. They want to get along with others. They want high wages, chances for promotion, opportunities for interesting work, and good physical working conditions. Since the supervisor cannot raise pay, security, or opportunity every day, Mr. Kahn suggested these ways of meeting employee needs:

1. Support. Most workers need to be approved and accepted by those in authority. Supervisors meet real needs when they behave in a warm, supportive fashion toward their men.

2. Help in meeting job goals. The supervisor who improves work planning or eliminates production bottlenecks helps workers achieve goals.

3. Definition of the way to advancement. Workers must know what leads the supervisor to recommend advancement for a man—be it favoritism, special training, performance on the job, or other factors. Men are not fooled when a supervisor doesn't follow his own criteria.

4. Help in setting personal goals. Many workers have their goals in life well formed from the first. Others, like workers who have never thought of promotion and are encouraged to work toward it, may have their personal goals heavily influenced by their supervisors.

● **Arbitration decision**—Arbiters uphold discharge of employee with two jobs, who refused overtime work—The Connecticut State Board of Mediation and Arbitration, by a two to one vote, has declared it cannot accept as reasonable an employee's refusal to work overtime simply because he has a second job. On this basis the board has ruled that Jorge Hernandez was discharged for justifiable cause, under the terms of the labor contract at Madwed Manufacturing Co. The grievant was represented by the Leather Goods, Plastic and Novelty Workers Union.

The board reported that Mr. Hernandez was hired by Madwed in December, 1951, and was employed in the spray-enamel department, where production had been somewhat seasonal. During the first half of 1959 he averaged three hours a week of overtime, and then business slacked off to the point where there was insufficient painting to be done to fill a 40-hour week. He was kept on a 40-hour week by assignment to odd maintenance jobs.

In August, 1959, Mr. Hernandez took a second job in another city, working the second shift starting at five P.M. Madwed complained that his work began to suffer. He frequently left a little early at Madwed and reported late the next day. After complaint, the board said, he corrected this practice. Then in November, 1959, Madwed posted notice that the whole shop would go on a 48-hour week. The union reported that Mr. Hernandez was the only employee who couldn't work the new schedule. The company then advised Mr. Hernandez to work the 48-hour schedule or be dismissed. When he refused to agree he was discharged. The union protested the action as unfair because the contract calls for a 40-hour week and an eight-hour day and pointed out that Mr. Hernandez simply was trying to provide adequately for his wife and five children. The board majority said: "While the board is sympathetic with the economic problems faced by a man with a large family, it cannot accept as reasonable Mr. Hernandez' refusal to work overtime simply because he had a second job."

● **NLRB ruling**—Employee penalized by union is reinstated—An employee was fired at the request of the union because he refused to pay a fine for missing union meetings. The NLRB ruled to give him back pay.

To encourage attendance at meetings the union in question fined absent employees. One absent and fined employee was laid off. Under standard union practice laid-off employees in good standing need not pay dues. The union said he was not in good standing. When he returned to work, he was asked to pay the missed dues payments. He refused and was fired by the company—National Automotive Fibres, Inc., Oakland, Calif.—at the request of the union.

The NLRB ruled that dues must "be charged to all members alike or that any distinctions be based upon reasonable general classification. A classification based upon failure to pay fines is not a reasonable classification." The board found the company and the union guilty of an unfair labor practice.

Marquee of Arkla gas station features big Blue Flame symbolizing gas equipment on sale

New Arkla 'gas' stations sell gas—naturally

(The following story, originally published in Electrical Merchandising Week, February 29, is reprinted by special request.)

Two years ago, some laughed when W. R. Stephens said his Arkansas Louisiana Gas Co. was going to start making and selling old-fashioned gas lights to Southwest home owners.

Now, Stephens' company is building a chain of $55,000 gasoline service stations. These "Arkla Centers" will sell the gas lights, gas air-conditioning units, gas heaters, horse buggies, rocking chairs, cement, Fiberglas motor boats and various oil products.

Arkla stations may be a far cry from a "typical" gasoline station, but nobody is laughing now at tall, heavy-set Stephens. Especially not electrical appliance sellers in Arkansas, Louisiana and Texas. If the stations are as successful as other Arkla doings have been the last two years, they will present some stiff competition for appliance stores.

Since January, 1958, Arkla has sold 49,000 of its patented "Gas-lite" units at between $25 to $80 each. Such success has aroused the interest of others, resulting in about 70,000 gas lamps now dotting Southwestern lawns, restaurants and even some small airport landing strips. At least one electric utility, Dallas Power & Light, also has got into the act. DP&L now markets a "Ready-Lite" electric lamp similar in design to the gas lamps.

Arkla's Stephens decided to bring the gas lights back on the American scene as part of a general diversification program started by the gas firm in 1957. He mixes a blend of "necessity" products such as air conditioners and refrigerators with novelties like gas lights and buggies, and the results so far have spelled profits.

Gas air conditioning came first for the concern, back in late 1957, by acquiring Servel's gas air conditioning division. Then came diversification into gas lights, buggies, rocking chairs, a cement plant, Fiberglas boats and other things.

Last spring, it was decided that Arkla could realize more profits, and at the same time secure retail distribution centers for its products, by getting into the retail gasoline business. Until then, an Arkla subsidiary, Arkansas Louisiana Chemical, had made and sold petroleum products at wholesale.

So now, Arkla is building a chain of its "service centers." So far, one has been opened in El Dorado, Ark., and another is opening in Little Rock. Others will go up in other Arkansas cities and also in eastern Texas and northern Louisiana.

Plans call for the centers to be opened with lots of color (pennants, flowers, "drawings" for free gifts) backed by heavily concentrated local advertising. After the openings, they'll be open daily from 6 a.m. to 10 p.m.

Stations will have drive-in windows where gas utility customers can pay their monthly bills. A special section of the station building will be used to display and sell the various Arkla appliances and other products promoted by the company.

At the centers and in his company, Stephens can be expected to continue a policy of team and individual competitive sales contests to peddle the gas lights, air conditioners, and so forth. At Arkla, 3,000 employees (including those of eight subsidiary firms) are all considered salesmen. And, they say Stephens is the best salesman of them all.

"I wouldn't be surprised to see him right out on the street at one of the stations this summer, flagging down motorists," says one person connected with Arkla.

Employees are encouraged to sell to their friends, neighbors and casual acquaintances. For those who win sales contests, cash prizes can range up to $500. Dinners for winning sales teams

(Continued on page 24)

Custodian of the Lechner school points out to principal William Seabrook the master clock control which regulates all the individual heater units

A fifth-grade teacher confers with H. C. Emmerich, Ohio Fuel Gas Co., on use of the classroom thermostat. Ohio Fuel provided advisory help

Berea, Ohio's newest school building reverses trend by

Ohio Fuel Gas reports new ideas in design, gas heating prove boon to Berea, Ohio, school district

Decentralized gas heating cuts school building cost

Today's constantly rising school construction costs are being fought to a standstill in Berea, Ohio, where new schools are being built at a steadily lowering per-classroom financial outlay.

Embarked on a long-range school construction program, the Berea School District is finding ways of doing it for less rather than more.

The new Robert H. Lechner elementary school, for example, was put in use for the first time last September at a lower per-classroom cost than for any new Berea school built since 1953. Another new elementary school now under construction and expected to be ready by September, 1960, will show an even further substantial cost-cutting.

How does Berea do it?

The answer is many-fold. It includes some new ideas in utilitarian design and wide use of modern equipment.

For instance, at the Lechner school

Part of the gas equipment in the new Robert H. Lechner elementary school in Berea is this huge, automatic, gas-fired incinerator

An eight-burner gas range with two large ovens, an automatic gas water heater equip the kitchen, which feeds some 100 Lechner pupils daily

rend by ... at lower rather than higher cost. New gas heating system helps

the architects have designed an all-purpose room that can be used as a gymnasium, auditorium for stage presentations, or as a lunch room. The stage is placed along one wall of the all-purpose room. Along other walls, tables and benches fold flush and may be dropped into place for lunch room use. High, pre-fabricated window walls provide plenty of light for all uses—and when draperies are drawn over the windows and a screen lowered, the room becomes a theater well suited for visual-education aids.

Another economy feature—one which combines a departure in design with the use of ultra-modern equipment—is the use of a new decentralized natural gas heating system. This system eliminates the need for a central boiler room and the necessary expensive piping throughout the building. Despite the use of a number of small heating units, elimination of the boiler room resulted in a construction saving.

Decentralization is achieved by placing a gas-fired furnace between each two classrooms. The furnaces are located in small, separate heating rooms which are accessible from the outside. Thermostats in each classroom allow individual room control of temperature—and eliminate the traditional complaints that a room is either too hot or too cold.

Each heater has filters for cleaning the air and uses outside air for combustion. Heater rooms can be added for additional classrooms without straining the capacity of a single large heater unit and the heaters can be adapted for cooling if longer school terms are required.

William Seabrook, principal of Lechner school, expresses satisfaction with the new heating system, based on his experience so far. Seabrook has served as first principal of several other new school buildings in fast-growing Berea, but this is his initial experience with the decentralized heating system.

Predictions are that Berea's school population of 28,000 in 1959 will rise to 44,000 by 1965, so savings such as are demonstrated by elimination of the old school boiler room become highly important.

Lechner school was completed at a cost of $13.20 per square foot—and the downward trend continues with a $12.85-per-square-foot anticipated cost for the Marguerite K. Raub Elementary School, now under construction.

The half-million dollar Lechner school was designed by Mellenbrook, Foley and Scott, Berea architects. It has a capacity of 420 pupils, with 14 teaching stations, the all-purpose room, utility room, administrative offices, and kitchen.

Prepared by A. G. A. Bureau of Statistics

Total gas utility and pipeline industry sales to ultimate consumers during January, 1960, declined .6 per cent from the same month one year ago. This is the first decline registered during the month of January in 14 years. In January, 1946, total sales declined 1.1 per cent from January, 1945; like the current period, it was due to the abnormally warm weather that was experienced throughout most of the nation. Total gas sales during January amounted to 9,954 million therms.

The daily cumulative average degree day deficiencies during January, 1960, was 819, representing a decline of 8.8 per cent when compared with January of last year.

Because of the prevalence of cycle billing among most of the larger gas utilities, current gas sales reflect a portion of deliveries actually made in December.

Industrial gas sales during January, 1960, totaled 3,422 million therms, a gain of 3.0 per cent over last year. Production of materials during January continued upward, following the marked recovery in December, 1959, and regained the peak reached before the steel strike. Activity in the nation's factories, mines, and other industrial establishments in January was the highest on record. The recently revised Federal Reserve Board index of industrial production (1947-1949 = 100) hit a new peak of 169 in January. The A. G. A. index total gas utility and pipeline sales for January, 1960, was 284.4, a decline of .6 per cent from January, 1959.

For the 12-month period ended January 31, 1960, the gas utility and pipeline industry sold 87.3 billion therms of gas, a 7.4 per cent increase over the 81.3 billion therms sold in the comparable cumulative 12-month period ended January 31, 1959.

Housing starts during January, 1960,

(Continued on page 34)

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING JANUARY, 1960

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	January		December		The Year 1959	
	Units	Per Cent Change	Units	Per Cent Change	Units	Per Cent Change
RANGES (including built-ins)						
Gas	132,000	—11.2	157,100	—13.2	2,010,500	+ 6.0
Electric	113,500	— 6.1	147,500	+ 2.4	1,686,800	+24.5
WATER HEATERS						
Gas	215,900	—18.9	195,400	— 5.7	2,956,000	+10.6
Electric	48,700	—22.5	41,300	—37.0	757,600	— 7.7
GAS HEATING—Total	73,508	— 3.5	80,288	+ 0.7	1,357,348	+21.3
Furnaces	59,800	— 5.7	65,100	— 0.7	1,053,400	+23.4
Boilers	6,608	+ 9.1	7,388	+ 1.2	147,748	+19.9
Conversion Burners	7,100	+ 6.0	7,800	+14.7	156,200	+10.0
OIL-FIRED BURNER INSTALLATIONS	47,977	+ 9.0	49,524	+11.1	637,057	+12.1
DRYERS						
Gas	37,430	— 5.6	48,100	— 0.3	476,700	+25.9
Electric	74,180	— 5.6	86,530	—14.1	905,190	+ 9.9

Sources: Gas Appliance Manufacturer's Association, National Electrical Manufacturer's Association, "Fuel Oil and Oil Heat," and American Home Laundry Manufacturer's Association.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING JANUARY

(MILLIONS OF THERMS)

	1960	1959	Per Cent Change
Month of January			
All types of Gas	9,954.0	10,016.9	— 0.6
Natural Gas	9,642.4	9,658.5	— 0.2
Other Gases	311.6	358.4	—13.1
Twelve Months Ended Jan. 31			
All types of Gas	87,304.5	81,326.7	+ 7.4
Natural Gas	85,006.5	78,866.6	+ 7.8
Other Gases	2,298.0	2,460.1	— 6.6
January Index of Monthly Utility Gas Sales (1947-49 = 100)	284.4	286.2	— 0.6

PERTINENT BUSINESS INDICATORS, JANUARY, 1960

(WITH PER CENT CHANGES FROM CORRESPONDING PERIOD OF THE PRIOR YEAR)

	January			December		
	1960	1959	Per Cent Change	1959	1958	Per Cent Change
Industrial activity (1947-49 = 100)	169	152	+11.2	165	151	+9.3
Consumer prices (1947-49 = 100)	125.4	123.7	+ 1.4	125.5	123.7	+1.5
Housing starts, nonfarm (thousands)	75.9	87.0	—12.8	83.7	91.2	—8.2
New private construction expenditures ($ million)	2,747	2,582	+ 6.4	3,062	2,900	+5.6
Construction costs (1947-49 = 100)	179.4	171.9	+ 4.4	179.3	171.8	+4.4

'Mr. Magoo' goes gas for TV

Jim Backus, voice of the cartoon character "Mr. Magoo," stars in a gas incinerator TV commercial shown here being taped for an East Ohio Gas Co. spot. Other spots made by Backus featured gas water heaters

More than 48 million impressions!

That's The East Ohio Gas Company's goal in its new approach to a sales campaign for smokeless-odorless gas incinerators and 40-gallon gas water heaters.

Scheduled to run throughout early spring, the campaign is unlike any conducted previously by the northeastern Ohio utility. It will be built around prime-time television spot commercials.

Featured in the spot announcements will be Jim Backus, star of the television series, "I Married Joan," voice of famed cartoon character "Mr. Magoo," and featured performer on such television dramas as "The Untouchables."

Seventy-eight spots will be purchased during the 13 weeks of the campaign from three Cleveland television stations. Each week will see six spots appear in prime-time locations.

"We know there are about 1,300,000 television sets in the area served by the three stations," states John S. McElwain, general sales manager. "Average ratings of the spots during prime-time is 23.8, which means an average of 310,000 sets will be tuned in on each commercial.

"Therefore, if just two persons are watching each receiver, the audience for the spots will be about 620,000 persons. Thirteen weeks of these commercials should give us 48 million impressions."

Ten water heater and three incinerator manufacturers will participate in the promotion. Each will receive an equivalent number of TV spots carrying his product's brand name identifications.

Participating manufacturers will help defray TV time costs. The utility will pick up the tab for producing the commercials and most of the time expenses.

East Ohio will also run newspaper advertisements and daily radio commercials on five-minute news and weather shows. The radio programs will be broadcast in Canton, Akron, Youngstown, and other northeastern Ohio cities.

Further support to the promotion will be rendered by point-of-purchase display packages for dealers; a heavy water heater-incinerator commercial schedule on the company's regular nightly 15-minute news program over WEWS-TV, Cleveland; two months of outdoor billboard advertising; and messages on monthly gas bills sent to 800,000 customers.

More than 200 black and white billboards throughout the system will herald the campaign. Three different designs will be featured on the billboards. One shows a skeleton of a dinosaur, with the words: "BONES—gone in a gas incinerator." Similar ones illustrate waste paper and banana peels, both "gone in a gas incinerator."

Large display cards will be placed on the company's truck fleet. The trucks will carry the cards for the duration of the campaign, and will be seen throughout northeastern Ohio. They will feature one sign for incinerators and another for water heaters.

Point-of-purchase kits include display signs and blinking light displays.

Mr. Backus will use his famous "Mr. Magoo" voice in some of the commercials. One film shows a cartoon animation of a shaking, nervous man, and

(Continued on page 34)

Gas cooling can provide 'good soup' (cash) to fill that 'empty bowl' revenue curve

Cooling: a summer value to beat 'summer valley'

By DAVID J. KERR

Director of Business Development
Southern Union Gas Company
Dallas, Texas

For the vast majority of gas utilities, their revenue curves for any given year represent the appearance of an empty soup bowl. The depth or shallowness of the bowl is determined by weather, heating load saturation, interruptible customers, two-part rates, and other variables.

In the case of my company, Southern Union Gas, we actually lose money in five out of the 12 months of each year. By this I mean that our revenue during these five months does not equal our total out-of-pocket costs in the same period. Of course, we are not buying as much gas for resale in the summer as we do in the winter, but our operating expenses—wages, materials, depreciation, and so on—are about the same in July as they are in December. Southern Union, which primarily serves a number of small communities in the Southwest, does not have many large industrial customers whose gas service can be put on an interruptible basis. Most of our business is with residential and small commercial customers, whose gas consumption runs pretty much parallel with current temperatures. And it gets pretty cold in New Mexico, northern Arizona and up into Colorado where most of our meters are located.

Thus, Southern Union and many of its sister gas companies are confronted with a rather deep valley in their annual sales charts. Nationally, we have helped build the fifth largest industry in America, with a gross plant of nearly $20 billion. But while gas companies sold 87 billion therms last year, a disproportionate share was bought during the cold weather months. And though the industry wound up 1959 with nearly 600,000 miles of gas mains and pipelines, a good portion of this vast underground transportation system was only in partial use during several months of the year. Therefore, while we may be getting a fair chunk of the consumer's dollar in the winter-time, we can't brag about our share during the summer months.

All-gas home in Carlsbad, N. M., features central gas air conditioning

Sacred Heart Catholic Church, Galveston, employs a 60-ton gas unit

(Excerpted from a talk delivered by Mr. Kerr before the Sixth Annual Public Utilities Seminar of the American Marketing Association, in St. Louis, Mo.)

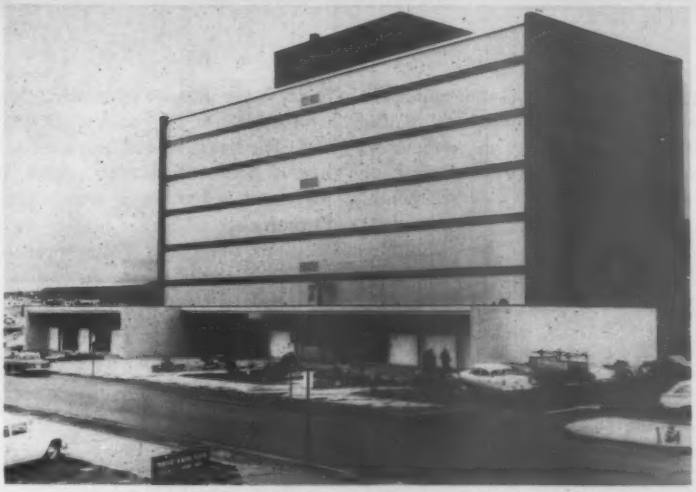
The gas industry has been making tremendous strides toward building its year-round load. Millions of dollars are being spent each year to develop new gas-burning equipment. Today there are more than 25,000 usages of natural gas in commerce and industry, although many of you may be familiar with only the basic eight uses in the home—cooking, water heating, clothes drying, refrigeration, space heating, incineration, gas lights, and gas air conditioning.

Now, of the gas equipment used in the home, which I just enumerated, there is a good year-round load characteristic on several of them. Probably the gas light represents the ultimate from the standpoint of constant usage. Right behind it are the refrigerator, water heater, range, dryer and incinerator. If you'll pardon the personal example, I built an all-gas home in Dallas three years ago where we installed separate metering for a year-round air conditioning system and the other gas equipment. In this house we have a built-in gas oven and burner tops, gas refrigerator, gas dryer, gas incinerator, two gas water heaters and three gas lights. The cost of operating all of these gas appliances has never varied more than pennies on a month to month basis from a $10 average. In other words, these basic household appliances represent a pretty constant load factor, not only on a monthly basis but even day to day.

But then we come to the heating end of the gas business, which is where most gas utilities get way out of balance with their load factor. It is here that you must appreciate the gas company's responsibility to provide sufficient capacity in its distribution system to take care of peak day requirements, which on a cold winter day for some utilities can be as much as 10 to 15 times the gas needed to supply minimum summer usage.

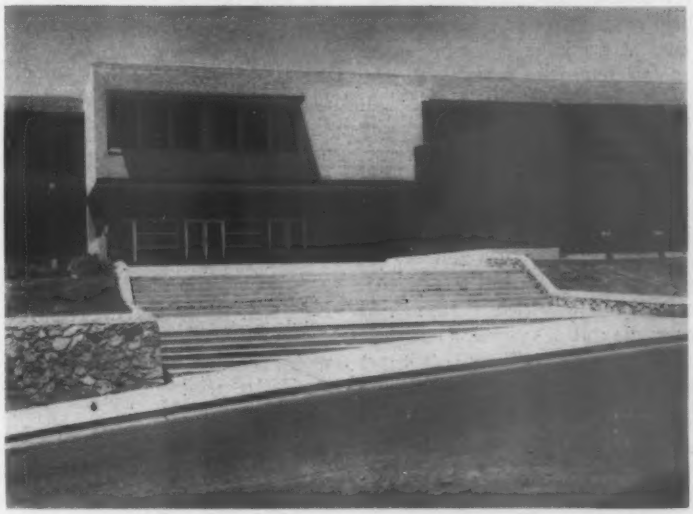
Of the 30 million residential gas consumers in this country, about two-thirds —or twenty million—are househeating customers. This saturation of heating customers varies from a high of 99.6 per cent in the Southwest to 22 per cent in New England, where natural gas service was only recently introduced and where its costs are high compared with imported fuel oils.

If you realize that for most gas companies the commercial and industrial space heating load factors are usually quite comparable with the residential



University Towers Medical Bldg., El Paso, uses 300 tons of gas cooling

Bank of New Mexico Building, Albuquerque, adds 300 tons of gas cooling



Large-tonnage gas cooling installation in school provides good load

usage, you can begin to understand the imbalance created by that thing the weatherman calls degree day deficiency. However, let me not be accused of deprecating the DDD's. Last month, which happened to be a little colder than usual in some of our properties, Southern Union sold nearly $6 million worth of gas, which is better than 2½ times as much as we sold last July. But we like those $6 million months and have no desire to lose any of our heating load.

Better yet, down at Southern Union—and in many other gas companies across the country—we have taken a positive approach towards this whole matter of load balancing. We want a larger share of the consumer's dollar, but, if possible, we want those dollars hitting our bank account in an even year-round flow. And, I might add, while we want a larger share of the consumer's dollar, we don't want to charge our customers more for any service—cooking, water heating or space heating, for example—than they would pay for the same services from a competitor.

This is why we at Southern Union are so excited about gas air conditioning. I say "we" here in the broadest sense, because the excitement runs all the way from our stockholders, through our officers and employees, to our customers. Each has his own right to be excited. The stockholder knows that revenue from gas air conditioning can be added without the need for additional investment in distribution facilities—a most important consideration in today's tight money market. The officers know that this additional summer load can help offset increased costs and keep our rates at a minimum commensurate with a fair return on investment. The employees know that this air conditioning load adds up to both job security and greater opportunity. And, of course, our customers are beginning to realize that gas air conditioning means a real bargain in year-round comfort.

Again, please allow me a personal example. My January gas bill was $31.05. Subtract the $10 which I mentioned earlier as the cost of operating our basic gas appliances and you'll see that it cost me about $21 to heat our home during what is one of our coldest months in Dallas. This may sound pretty cheap to you marketing people from the North, but if you are interested in comparisons I have 2,265 square feet of living space in my home and we maintain a daytime temperature of 72° and night time of 68°. The house is well insulated and we have a perimeter heating system, using the crawl space for a return plenum. Degree days in Dallas in January were 628, and for a year will average 2,272. Incidentally, natural gas in Dallas costs the residential consumer about 70 cents per thousand cubic feet, so you can see that I used about 30 MCF for heating last month.

Now I've told you what the Kerrs paid the Lone Star Gas Company in January. What about last July, when outside temperatures were a little cooler than usual but occasionally hit the mid-nineties? Inside, our gas air conditioning system maintained a pleasant 74°. Our gas bill that month was $24.17, and again subtracting the $10 for basic appliances you'll see that we paid Lone Star a little over $14 for the privilege of keeping cool. Once again this may sound a little cheap, but it is in part the result of special air conditioning rates offered by Lone Star. These special rates are, by the way, a real sales tool in building a gas air conditioning load.

Sell large tonnages

What my January and July gas bills suggest is the prospect of using gas air conditioning to help fill up that soup bowl and to build a nearly horizontal load curve, with perhaps a couple of small ripples in the spring and fall. That may be easier than many gas men realize, because when you start developing the large tonnage market you find the load factor is often more favorable with commercial and industrial users of gas air conditioning than the residential customers. For example, the First National Bank Building in Oklahoma City uses an average of 21,400 Mcf of gas per year for heating purposes and a whopping 37,600 Mcf for cooling. There are actually thousands of such large gas air conditioning installations in the country today, including such prestige projects as Idlewild Airport in New York City with 6,000 tons, the Air Force Academy at Colorado Springs with 3,000 tons and the Exchange Park in Dallas with an eventual load of 12,000 tons.

If you are interested in determining the value of a gas air conditioning load, it might be well to start with a simple formula. Absorption-type gas air conditioning equipment, which is being built today in sizes from three tons to 700 tons, consumes approximately 20 cubic feet of gas per ton hour. If you are located in a territory where air conditioning equipment will operate an average of 1,500 hours a year, you can see where this would produce sales of 30,000 feet of gas for each ton of absorption equipment installed. The gas consumption is somewhat less in steam turbine and gas engine driven air conditioning equipment, but from the standpoint of most gas utilities, *any* air conditioning load is a real bonus in that the only appreciable expense is the cost of gas at the city gate.

To provide you with a concrete example, we expect that it won't be too many years before we have a half-million tons of gas air conditioning installed on Southern Union's lines. This equipment should average about 1,500 hours per year of operation. We are therefore looking at gas sales equivalent to 15 billion feet a year. Assuming that our gas costs us an average of 30 cents per Mcf at the city gate and that we get 45 cents retail on the average, we are looking at a net profit of $2¼ million. Even after taxes, there's better than a million dollars left over, which in our case would mean close to 50 cents a share for the common stockholders.

Now some of my gas company friends from above the Mason-Dixon line are probably about ready to call my hand. They are mumbling, "What the heck does this air conditioning load mean to a Yankee gas man?" Well, if that question is bothering any of our marketing specialists, perhaps we ought to take a look at the sales potential for air conditioning on a national basis. To start with, let's recognize that air conditioning itself is a relatively new product. The first window units made their appearance in the early thirties and Servel is given credit for producing the first central home air conditioning in about 1940. When John Dillinger was killed in front of the Biograph Theatre in Chicago by the FBI in the mid-thirties there was a sign on the marquee to the effect, "ice-cooled air."

World War II brought about an acceleration of the air conditioning art due to military requirements for cooling and refrigeration. But it was not until after the war that the air conditioning industry really got going. Today

(Continued on page 32)

Kitchen remodeled by *American Home* featured traditional styling, modern efficiency. Gains included counter space on three walls, space for entire added laundry, in alcove as shown above

Remodeling makes old kitchen new

The MONTHLY's New Freedom "kitchen of the month" is the *American Home* kitchen-laundry featured in the magazine's March issue. As shown in the photographs above, the design utilizes traditional decor in a country-style setting emphasizing informal family living.

Worthy of note is the fact that this kitchen, rather than being completely new, is the result of a remodeling, carried out in order to give readers of the magazine inspiration and information for remodeling their own kitchens.

Principal achievement of this "model remodeling" was the reorganization of space and rearrangement of appliances and facilities for greater efficiency. As pointed out by the magazine, most outdated kitchens suffer from common faults of poor planning and inconvenience. As made over by *American Home*, this kitchen combines the charm of old-fashioned styling with the work and space saving benefits of modern kitchen planning.

Basically, the job consisted of tearing out partitions which had previously cut up the kitchen into inconveniently separated areas. Consolidation of the entire area into one unbroken expanse made possible a continuous arrangement of cabinets and appliances along the walls. A former dinette area was eliminated entirely, by simply placing the dining table in the center. Besides the resulting gain in convenience, enough space was freed for the *addition* of a complete laundry.

It was possible also to add other new features, including a built-in gas oven, sink disposer, automatic dishwasher, and a planning desk.

As extra dividends, the kitchen gained almost three entire walls of counter space, greatly increased and more accessible storage space, and improved lighting.

Handsome early American cabinetry and kitchen furniture completed the transformation.

Gas appliances in the completed kitchen-laundry include a built-in gas cooking top, the built-in gas oven, a gas refrigerator and a gas dryer.

As with other magazine-designed New Freedom gas kitchens, cabinets and gas appliances were obtained through the cooperation of the A. G. A. Home Bureau, working with cabinet makers and gas appliance manufacturers.

Accident experience in 1959 shows 11 per cent decrease

During the fourth quarter of 1959, the A. G. A. sample of 83 companies employing 37 per cent of the total labor force of the gas utility and pipeline industry recorded the lowest quarterly frequency rate since its inception two years ago. Almost 76,000 employees worked over 40 million hours and established a safety record of 6.77 disabling injuries per million man-hours of exposure. The resulting severity rate due to the 272 disabling injuries was 445. Percentagewise the current fourth quarter frequency and severity rates declined 19.6 per cent and 12.6 per cent respectively, from the same quarter last year.

The record low quarterly frequency rate establishes the fourth quarter of 1959 as the safest quarter of the current year. Last year the same quarter ranked third safest. The dishonorable position of last place in safety once again belongs to the third quarter. In spite of the fact that the third quarter frequency rate dropped to 7.46, a decrease of more than 21 per cent over the same period last year, it still remained the most hazardous to the gas utility employee.

The 1959 annual average frequency rate of the quarterly sample indicates 7.16 disabling injuries occurred for each million man-hours worked. The severity rate was 526 days lost per million man-hours due to these disabling injuries. The current rates represent decreases of 11 per cent and 23 per cent respectively from the previous year. Based upon the accident data received for all quarters of the current year, the gas utility and pipeline industry should achieve, for the twelfth straight year, another record low frequency rate. The severity rate, although it probably will improve over last year, will not be below the record low of 462 days lost per million man-hours of exposure which was established in 1957.

Seventy of the 83 sample companies provided vehicle statistics for the current quarter. These companies represent 34 per cent of the total manpower of the industry and operated 21,017 vehicles over 62 million miles. There were 1.45 accidents for each 100,000 miles travelled by these vehicles during the current quarter.

This is an improvement of 9 per cent when compared to the rate of 1.60 for the previous fourth quarter. The average number of accidents per 100,000 miles for all quarters of 1959 was at a rate of 1.42 which is 7 per cent above the rate of 1.33 for 1958.

GAS EMPLOYEE QUARTERLY ACCIDENT EXPERIENCE

	1958	1959				
	Annual	First Quarter (Sample)	Second Quarter (Sample)	Third Quarter (Sample)	Fourth Quarter (Sample)	Four Quarters (Sample)
Number of reporting companies	516	83	83	83	83	83
Average number of active employees	193,748	75,075	76,589	77,558	75,911	76,283
Number of injuries						
Fatality	26	2	1	5	1	9
Permanent total disability	1	0	0	0	0	0
Permanent partial disability	104	2	4	4	19	29
Temporary total disability	3,037	265	266	286	252	1,069
Total	3,168	269	271	295	272	1,107
Days charged						
Fatality	156,000	12,000	6,000	30,000	6,000	54,000
Permanent total disability	6,000	0	0	0	0	0
Permanent partial disability	51,346	274	544	1,028	7,528	9,374
Temporary total disability	54,819	4,254	4,194	5,094	4,368	17,910
Total	268,165	16,528	10,738	36,122	17,896	81,284
Frequency Rate	8.07	7.19	7.00	7.46	6.77	7.16
Severity Rate	683	441	277	946	445	526
Vehicle accident statistics						
Average number of employees	152,749	69,695	71,195	72,196	71,007	71,023
Number of vehicles	41,392	22,481	20,425	21,036	21,017	21,240
Vehicle miles traveled (000)	507,675	52,764	61,531	60,577	62,422	237,294
Number of reportable accidents	6,732	954	759	746	906	3,365
Number of personal injuries	226	29	33	17	47	126
Accidents per 100,000 miles traveled	1.33	1.81	1.23	1.23	1.45	1.42

Gas stations

(Continued from page 15)

are frequent (typical menu: barbecued chicken, ham, beans and coffee).

At mid-'59, Arkla was serving 273,532 customers in Arkansas, northern Louisiana and northeastern Texas.

Just recently, Arkla's directors and those of Consolidated Gas Utilities agreed to merge Consolidated into Arkla. While this merger is subject to stockholder and regulatory agency approval, there seems little doubt that it will eventually go through. When it does, Arkla's territory will be extended into Oklahoma and Kansas, where Consolidated now serves about 90,000 gas customers.

Oklahomans and Kansans, too, can then look for the gas lights, the buggies, and so on.

Convention

(Continued from page 13)

that "Festival of Flame" will include approximately 200 significant new developments in gas appliances and displays of the best current practices in gas exploration, supply, transmission and distribution. If the representatives of the company in question spent just 10 minutes at each of the "Festival of Flame" displays their total viewing time would be a minimum of 30 hours.

The General Convention Committee and the Exhibit Planning Committee urge each gas company president to make certain that his staff is adequately represented at the 1960 A. G. A. Convention and Exhibit.

Customer calls and complaints dramatically reduced by statistical control methods

Statistical sampling and customers

By J. H. PURDY

Manager, Customer Relations
Baltimore Gas and Electric Company
Baltimore, Md.

Complaint Departments, which came into being when trading passed from the "buyer-beware" into the "satisfaction-guaranteed" era, were first fostered primarily by department store owners. Storekeepers knew that, out of thousands of sales, there were bound to be a few defective items. Macy and Gimbel, with others, chose to make it easy for a customer to complain about an unsatisfactory article, rather than inspecting each item for possible flaws. A central location for exchanging defective merchandise was the device hit upon.

When public utilities saw that department stores were building good will through their complaint departments, they decided to hop on the band wagon. The thinking may have been, "If it's good for Macy, it's good for us." In any event, utility complaint departments were poured into the department store mold—often with too little awareness that the major causes of complaints in a department store and a utility are completely different. It is not usually our products which lead to complaints but our policies, procedures and performance.

A department store can afford to concentrate on straightening out individual situations. These can usually be handled quickly and easily in a single customer contact. The chances are that the item causing the complaint is the only defective one in the entire lot.

A utility—unlike the shopkeeper—cannot afford simply to set right individual cases, for the same situation will arise time and again unless the cause is eliminated. Preventive as well as remedial action is needed to control costs and minimize unnecessary customer contacts.

Not knowing the many causes of customer contacts becomes the greatest handicap to some utilities. The reason for this is clear: to obtain an individual record of each contact is economically impractical. Yet, we must know the approximate number of contacts made for specific reasons. Then we can develop what might be done to reduce those calls over which we have control. The development of such information would certainly disclose areas in which we are falling short of our obligations. Department heads would also profit by being able to relate customer reaction to their departments' operations.

The customer relations department is probably best suited to administer a sampling of why customers get in touch with the utility. This would seem to follow, since it is the point of nonroutine contact with most customers. This is the case with one combination utility which has developed and used a successful sampling technique.

A schedule of sampling days is established for the year so that they will fall on about the same number of Mondays as Tuesdays, and so forth, through Fridays. These days are also arranged so that they do not always occur during the same period of the months. Samples are not taken on weekends and holidays or during other than normal business hours, since projecting these figures would give a distorted picture of operations as a whole.

It should be mentioned that an outside expert in statistics was consulted to make sure all the requirements for a statistically sound procedure were met.

On sampling, or test, days, a portion of those employees who receive inquiries on a telephone service board, plus all other customer representatives in the department, issue either a special form or forward all cases closed on that day for classification. The special form, as shown below, asks these questions:

(1) Specifically, for what purpose did customer contact us?

(2) If known, what did we do or fail to do which caused customer to get in touch with us?

(3) How was matter disposed of?

Conference April 25-27, in New York

The National Conference of Electric and Gas Utility Accountants will be held this year at the Commodore and Roosevelt Hotels, New York City, April 25, 26 and 27.

General sessions will convene at the Commodore at 10:00 a.m., Monday, April 25.

Featured speakers will include Dr. Nicholas Nyaradi, former Minister of Finance for Hungary; James K. Polk, partner, Whitman, Ransom and Coulson; and C. H. Domke, partner, McKone, Badgley, Domke and Kline.

(312)—D—1B-16 B. G. & E. Co. Customer Relations Dept.

CUSTOMER CONTACT REPORT

Address 3092 Devapton St. | 101.1.2 Classification Number

U

Name Al Porcino | R | F

1. Specifically, for what purpose did customer contact us?

Customer has not yet received current bill. He says he usually has it by now.

2. If known, what did we do or fail to do which caused customer to get in touch with us?

Three previous bills estimated. No bill can be rendered until an actual reading is obtained.

3. How was matter disposed of? Customer to read own meters and mail readings in. Arrangements also made for key to be left with the Meter Reading Dept. for future use.

Refer to Mr. Fayman | Issued By Childers | Working In: C. R. O. | T. S. D. X Inv. | T. S. D. I. C. R. F. | Date 11/5/59

All test tickets and closed cases are classified according to reasons for customer inquiries, complaints and requests. They are classified by *function—not department.* This is done to nullify any effect on the system if subsequent reorganization within the company results in the responsibility for certain functions being shifted from one department to another.

As the test tickets and closed cases are classified, a close watch is kept to make sure the customer contact was satisfactorily handled. This is a valuable "by-product" of the sampling program for it offers an opportunity to control the quality of action taken by the representative as a result of his contact with the customer.

At the end of every three months, a quarterly report is produced and issued to members of the company's management and to individual department heads. The report shows the total number of contacts for each classification, broken down into more than 400 functional categories. Statistical rules are again applied in order to project the sample figures into accurate indicated totals. It has been found, by comparing projected data with independent numerical counts, that a practical level of accuracy is obtained. The quarterly report enables the company to maintain a continuing check on its operations to the extent afforded by the stream of orders, inquiries and complaints which come from customers. All test tickets are also kept on file so that a specific operational area may be referred to and analyzed by any department responsible for the functions in that area. The possibility of using graphs to supplement the report is currently being studied. It is felt that graphs—each showing the relationship between a department's operations and the number of controlled customer contacts which stem from these operations—would more clearly reflect the total picture of trends and efficiency.

Shortly after the first quarterly report was produced in 1952, it pinpointed an area where service to customers could be improved. It showed that over 3,500 customers had contacted the company during the first three months of the year to inquire when the next regular meter reading would be taken. Although it was known that customers called for this information, no one had any idea how many calls were received. When projected annually, about 14,000 of these calls could be expected per year. In addition to customer inconvenience, each contact required a time-consuming check of the meter reading schedules. Because of the advantages, both customer and cost-wise, it was decided to show the next scheduled meter reading date on the bill. The success of this decision was clearly shown in the report following the release of the new bills: the number of calls dropped to 1,879 and further decreases have been noted as more customers have become aware that this information is on the bill.

A by-product of this change was a decrease in requests for costly special meter readings.

The sampling procedure has also proved valuable in measuring customer reaction to a change in policy. In November, 1958, the company increased the number of consecutive months for which an account could be estimated. The reports following this change showed that, for the first nine months, the number of contacts from customers who had not received a bill because all allowable previous bills were estimated, fell to 313. The number of such calls for the nine months prior to the policy change was 1,395. These figures have indicated to the company that the extra month's permissible estimation is accomplishing its purpose: the opportunity to render bills which would have otherwise not been sent until an actual meter reading was obtained.

How Figures Are Projected

The projected total number of contacts is obtained by multiplying the number of test tickets recorded in a specific classification by an established ratio figure. The ratio figure is gotten by taking the number of contacts closed during the quarter by the department administering the sampling procedure (or each particular division of that department); and dividing this by the number of test tickets issued during this period by the department or division. The number of closed contacts *excludes* those referred to other divisions within the administering department and also those for which actual counts are available from written orders.

An example of this projection method, as applied to a single classification, is as follows:

Total contacts, or cases, closed in quarter by the sampling group (for example, the Customer Telephone Board)	16075
Minus referred cases and actual count orders	8073
Contacts used to obtain ratio figure	8002
Number of test tickets issued in quarter	984
Ratio Figure $\frac{8002}{984}$	= 8.1

(Continued on page 34)

Restaurant Show, May 9-12, to feature gas exhibit

Once again the A. G. A. Combined Commercial Gas Exhibit will span Navy Pier at the quarter-mile-post during the four-day National Restaurant Exposition, Chicago, May 9-12.

All visitors must pass through the aisles of this largest single exhibit if they wish to see the rest of the show.

There will be 14 cooperating exhibitors under the Blue Flame banner, showing the latest in heavy duty commercial gas cooking and allied equipment.

This combined exhibit gives commercial gas representatives the opportunity to meet with equipment manufacturers and among themselves to discuss problems in their respective fields.

Newcomers to the A. G. A. exhibit are:

Comstock-Castle Stove Co., Quincy, Ill.

Joseph Goder Incinerators, Chicago

Peerless Stove & Manufacturing Co., Sandusky, Ohio

The other manufacturers joining with the Industrial and Commercial Gas Section, sponsors of this exhibit, are:

Anetsberger Brothers, Inc., Northbrook, Ill.

Cleveland Range Co., Cleveland, Ohio

Duke Manufacturing Co., St. Louis, Mo.

B. H. Hubbert & Son Inc., Baltimore, Md.

Kewanee Industrial Washer Corp., Kewanee, Ill.

Martin Oven Co. Inc., Rochester, N. Y.

Mid-Continent Metal Products Co., Chicago

Morley Manufacturing Co., Mascoutah, Ill.

Robertshaw-Fulton Controls Co., Youngwood, Pa.

Suburban Appliance Co., Morristown, N. J.

South Bend Range Corp., South Bend, Ind.

Gas school to coincide with Restaurant Show

A "Decade of Competition" will be the theme for students attending the 1960 biennial Commercial Gas School in Chicago during Restaurant Show week, May 9-12.

This year the school will be geared to the "Soaring Sixties" in a series of streamlined lectures by leaders in their respective fields of commercial gas utilization. Person-to-person discussion in the areas of commercial gas promise to make this the most outstanding school ever sponsored by the Industrial and Commercial Gas Section of the A. G. A.

Timed with the days of the National Restaurant Exposition on Navy Pier, the four-day school, May 9, 10, 11 and 12 at the Edgewater Beach Hotel, will cover the most frequent questions confronting commercial gas representatives in their everyday tasks of building this profitable load for their respective companies.

A highlight of the school will be a conducted tour of the Institute of Gas Technology, which is affiliated with the Illinois Institute of Technology. This unusual opportunity to visit IGT will give the students a better comprehension of the latest research advances in the gas industry.

In the afternoon the students will be taken to Navy Pier where they can inspect the hundreds of exhibits of the Restaurant Show including the large A. G. A. Commercial Gas Exhibit.

The redesigning of the school program has resulted in a compact series of lectures covering the following subjects:

Heat Application to Commercial Cooking Equipment

Water Heating for Food Service Establishments

Miscellaneous Water Heating Applications

Deep Fat Fryers

Commercial Incineration

Compartment Steamers and Stock Kettles

Roasting and Baking Ovens

Automatic Controls

Heavy Duty Ranges

Conventional and Open Hearth Broilers

Steam Generation

Creative Selling That Works

Counter Equipment

Commercial Kitchen Ventilation

Calculating Comparative Cooking Costs

Sanitation Standards and Their Influence on Commercial Kitchen Operation

How To Prepare a Proposal

Among featured lecturers will be Dr. Joseph W. Thompson, director, School of Hotel, Restaurant and Institutional Management, Michigan State University, who will conduct an entire afternoon's session on the subject of "Creative Selling That Works." Students will participate in this discussion and the techniques presented by Dr. Thompson are expected to provoke lively response.

The entire school program has been prepared by the Commercial Steering Committee of the Education Committee, M. A. McClurg, Laclede Gas Co., St. Louis, chairman.

A complete reference text dealing with all the subjects included in the course will be given each student as he registers at the school. Registration is limited to employees of gas companies, gas equipment manufacturers, gas equipment dealers, and present or prospective commercial gas customers.

Tuition fee is $50.00, payable to the American Gas Association and to be mailed with completed registration forms to Industrial and Commercial Gas Section, 420 Lexington Avenue, New York 17, New York. Registration closes May 6, 1960.

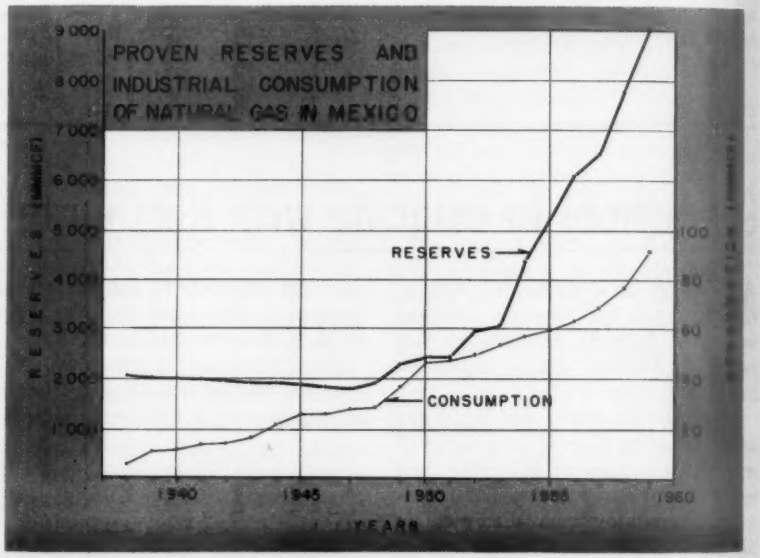
A program outlining the four-day course together with all other pertinent information already has been mailed to the membership.

A top Pemex engineer surveys present status and future prospects south of the border

Growth of the Mexican gas industry

By ANTONIO GARCIA ROJAS

Exploration Manager
Petroleos Mexicanos



Although Mexico has been an important producer of oil since the beginning of the century, and great quantities of gas have been produced with the oil, the gas industry is relatively new because in the past, with the exception of small quantities used for drilling and gas lifting, most of the gas produced was flared.

The first industrial use of gas started in 1931, when a gas line from Roma, Texas to Monterrey was finished. This line brought gas from Southwest Texas to the Monterrey industrial district, and small quantities of gas were used from three small fields discovered in northeast Mexico between 1931 and 1938. (La Presa, Lajitas and Rancherias.)

The beginning of the Mexican gas industry can be dated in 1943, when an intensive exploration campaign was started in different parts of the country, and a definite plan was laid to recover gasoline and liquefiable gases and sulphur from the gas produced with the oil in Poza Rica field.

There are, at present, two important gas producing areas in Mexico. One of them is the Reynosa district, located in northeastern Mexico and the other is the Macuspana district, in the southeastern part of the country.

Another minor gas producing district has been found in the southern part of Veracruz, and there is important gas production from the recently discovered oil fields of the eastern part of Ebano-Panuco oil district, from the Poza Rica-San Andres and from the western Tabasco oil fields.

A brief description of the geology and state of development of each of the gas producing districts is given below:

The Reynosa district, located in the northeastern part of the country, is in the northern part of Tamaulipas State and the eastern part of Nuevo Leon State, and geologically corresponds to the extension of the Southwest Texas district of the Gulf Coast.

Production is found in this area in the same formations producing in Southwest Texas, from sands varying in age from Miocene to Eocene. Recently some limestone Cretaceous production has been found west of the Tertiary producing area.

The bulk of the gas production and of the proven reserves in Reynosa district are found in Oligocene sands of the Frio and Anahuac formations, followed in importance by the production from Eocene sands. The production from Miocene and Cretaceous is of minor importance at present.

There are 29 gas fields in northeastern Mexico, many of them with several gas producing horizons. Most of the fields are in the stage of development, both in regard to the limits of the producing area and to the possibilities of establishing deeper producing horizons.

The gas production is found both in the highest parts of anticlines and in

(A talk by Sr. Rojas, delivered before the General Management Section Conference at Pittsburgh, Pa., March, 1960.)

sands which develop on the flanks of the structures, but there is a definite tendency for the Oligocene sands, of the Anahuac and Frio formations, to disappear in the western part. On the other hand, there are good possibilities to find stratigraphic type gas fields in the area south of the Reynosa field, where sand development begins to decrease.

The sand development of the Eocene gas field is not as important as those of the Oligocene. However, commercial production is found at different places and there is a big area open for exploration and development, as no intensive drilling has been done due to the effort placed for the development of the Oligocene production fields. The Miocene and Cretaceous producing areas are under a preliminary stage of development and at present all drilling is exploratory.

Present production of the Reynosa district is of 300 million cubic feet of gas and 1,500 barrels of oil per day. There is a large absorption plant at Reynosa city where 5,500 barrels per day of gasolines and liquefiable gases are obtained.

The proven reserves of the Reynosa district are of 3.15 trillion cubic feet. However, as many of the fields have only a few wells, the reserves can be increased substantially during development.

Northeastern Mexico has still a very big area open for exploration and development and the writer feels that the reserves found so far are only a small percentage of its potentiality. Pemex is carrying a continuous exploration campaign to extend the limits of the present producing areas.

The Macuspana district, located in the southeastern part of Mexico, extends into the eastern part of the Tabasco State and the western part of the Campeche State.

In this district all gas production has been found in sands of Miocene age, as shown in table 2.

At present seven gas fields have been discovered in the Macuspana district, but only the Jose Colomo field has attained an important stage of development. All other gas fields have only one or two wells, and their limits have to be defined.

The gas production is found in well developed sands, on the highest part of anticlines, and there are good possibilities to develop stratigraphic type gas pools on certain parts of the area, as there is a marked tendency for the sands to disappear towards the Gulf of Mexico and along a well defined anticlinal trend extending northwest of the Fortuna Nacional fields.

The José Colomo field has a relatively small producing area (2300 hectareas), but the main producing body has a very thick sand development about

Table No. 1
GAS FIELDS OF NORTHEASTERN MEXICO

Name of field	Discovery Year	Producing Formations	Range of Prod. Intervals M.
La Presa	1931	Q. City-Carrizo	386-1161
Rancherias	1933	Jacson-Yegua	274- 792
Lajitas	1934	Q. City-Carrizo	442-1119
Laredo	1937	Mount Selman	183- 208
Mision	1945	Frio-Vicksburg	1400-2000
Camargo*	1947	Frio-Vicksburg	609- 652
Valadeces*	1948	Jackson	1820-1830
Reynosa-Mexicano	1948	Frio	1400-2630
Brasil	1948	Frio	2060-2400
Francisco Cano	1949	Miocene Ind Anahuac Frio	1320-2380
Monterrey	1949	Frio	1738-2670
Trevino	1951	Frio	1782-3100
Lomitas	1951	Frio-Vicksburg	1317-2000
Chapul-Presita	1953	Frio	1500-1650
18 de Marzo	1954	Anahuac	2130-2170
Villa Cardenas	1954	Anahuac	2543-2550
Cabeza	1954	Jackson	1773-1780
Canon	1955	Frio	1345-1348
Pato-Culebra	1955	Queen City	1438-1590
Gmo. Prieto	1956	Anahuac	2388-2394
Matamoros	1956	Miocene Ind	1700-1710
Azucar	1956	Queen City	1385-1426
Tinta	1956	Vicksburg	190- 320
Garza	1957	Eagle Ford	471- 500
Torrecillas	1957	Frio	1750-2008
Sta. Gertrudis Sur	1957	Jackson	147- 150
Sta. Anita	1958	Mount Selman	1168-1335
Sto. Domingo	1958	Frio	2117-2133
Peñalva	1959	M. Selman-Carrizo	1122-1151

* Abandoned.

Table No. 2
GAS AND OIL FIELDS IN THE MACUSPANA DISTRICT

Name of field	Discovery Year	Producing Formations	Depth of Prod. Intervals M.	Produs.
Fortuna Nacional	1949	Encajonado & Upper Amate (Miocene)	285-1616 (4 sands)	Oil
Xicalango	1950	Lower Amate (Miocene)	1367-1396 (1 sand)	Gas
José Colomo	1951	Upper Amate (Miocene)	1371-2469 (3 sand bodies)	Oil & Gas
Cantemoc	1953	Upper Amate (Miocene)	1385-1432 (1 sand)	Gas
Vernet	1954	Encajonade & Upper Amate (Miocene)	961-1617 (6 sands)	Oil
Morales	1954	Upper Amate (Miocene)	1040-1071 (1 sand)	Oil
Bitzal	1955	Encajonado & Upper Amate (Miocene)	791-795 1385-1390 (2 sands)	Gas
Chilapilla	1956	Upper Amate (Miocene)	2436-2795 (3 sand bodies)	Gas
Hormiguero	1959	Upper Amate (Miocene)	1346-1358 1451-1468 2478-2484 (3 sands)	Gas
Coco	1959	Upper Amate (Miocene)	1500-1525 (1 sand)	Gas

600 feet thick, which accounts for the importance of this field.

The Macuspana district produces at present 300 million cubic feet of gas and 1,000 barrels of oil per day. There is a big absorption plant at Ciudad Pemex where 14,500 barrels per day of gasolines and liquefiable gases are recovered.

Due to the fact that at present there is no pipeline to take the gas to the market, the José Colomo field is the only one under production and the dry gas outcoming from the absorption plant is being injected back into the gas pools for future extraction. A 24-inch gas line (1,000 kilometers long) will be finished late this year and the Macuspana gas will be used at points as distant as Mexico City and Salamanca, in the central part of the country.

The proven reserves of Macuspana district are 2.8 trillion cubic feet, mostly from José Colomo field. However, as all other fields are still to be developed, these reserves represent only a small portion of the potentiality of the area, which is at the very early stage of development.

The Veracruz district (also known as the Papaloapan district) is located in the southern central part of Veracruz State, and at the end of 1959 it had seven fields of which four were gas producers.

The extent of the producing area and the reserves of those fields are small, but the district has still a big area open to exploration.

The gas production has been found on the crest of anticlinal structures and production comes from limestones of Cretaceous age and sands of Tertiary age as shown in table no. 3.

Structural conditions vary quite widely, and the main potential for new gas fields is believed to be in the Tertiary formations, with possibilities for production of lensing sands in the flanks of strongly folded anticlines. However, present information does not show promising prospects as good as those of the Reynosa and Macuspana districts.

As was indicated before, an important amount of gas is being produced from the oil fields at different parts of Mexico.

A major portion of this gas is used for pressure maintenance and secondary recovery from the oil fields and only a small percentage of the gas is being marketed.

Table No. 3

GAS AND OIL FIELDS IN THE PAPALOAPAN DISTRICT

Name of Field	Discovery Year	Producing Formations	Depth of Prod. Intervals M.	Production
Angostura	1953	Escamela (Cret.)	1335-1354	Oil
Casa Blanca	1954	Escamela (Cret.)	657-680	Oil
Tres Higueras	1955	Escamela (Cret.)	534-538	Oil
San Pablo	1956	Méndez (Cret.)	1880-1943	Gas
R:meon Pacheco Mirador	1956	La Laja (Olig.)	2440-2465	Gas
Nopaltepec	1957	Méndez (Cret.)	1786-1796	Gas
Mata Verde	1957	Deposito (Olig.)	868-873 877-879	Gas

The gas from the oil fields is very rich in gasolines and liquefiable gases and practically all of it is being treated at absorption plants in order to extract the gasolines and liquefiable gases.

Present gas production from the most important oil fields is as follows:

Summing up all present production from gas fields and from important oil fields the Mexican gas production is 900 million cubic feet of gas per day, which will increase rapidly when present gas lines under construction and under program will be finished.

The production from the Ebano-Panuco and Poza Rica districts comes from Cretaceous and Jurassic limestones and in Western Tabasco comes from sands of Miocene age.

Gas reserves from important oil fields is 2.0 trillion cubic feet of gas, and will increase materially with the development of new oil fields.

As a result of the discovery of numerous oil and gas fields during the last 15 years, the proven reserves of gas in Mexico show a marked increase.

The use of gas for industry has increased very rapidly during the same period, as shown in the same figure, and detailed studies of market conditions indicate that it will increase by about 300 million cubic feet of gas per day during the next 2 years, due to the finishing of gas pipe lines now under construction more than doubling present demand. After 1962 the yearly increase of demand will be around 8 per cent.

Hydrocarbons, both in the form of derivates of petroleum and gas fulfill about 92% of the energy used in Mexico, compared with 54% for the United States and an average of about 20% for Europe.

This special condition has determined the Mexicans to use natural oil and gas resources in the most conservative way, and has influenced to great extent the development of the oil industry.

Twenty years ago most of the gas produced was flared, but a definite program has been carried on—and will be continued—to avoid waste, and at present more than 86% of the gas is being used either as fuel or in repressuring projects. This percentage of used gas will increase gradually and by 1962 only the gas which is uneconomical to process or to market will be flared.

The Mexican production of oil and absorption products was 105 million barrels of oil per year during 1959, of which absorption liquids were 9.2 million barrels, or 9% of the total, as compared with 11% for the United States.

Present proven reserves permit a considerable increase of sales of gas, and Petroleos Mexicanos is building new gas lines, to open new domestic markets.

The Monterrey-Torreon gas line, 350 kilometers in length and 40.6 cms. in diameter, will be finished in the first quarter of this year, and the Ciudad Pemex-Mexico City gas line, 980 kilometers in length and 61 cms. in diam-

Table A

GAS PRODUCTION FROM MEXICAN OIL FIELDS

District and Field	Gas Production MMCFD
EBANO-PANUCO	35.5
POZA RICA DISTRICT	
Poza Rica fields	180.4
San Andrés-Hallazgo	28.8
New Golden Lane	14.0
ISTHMUS FIELDS	54.4
Total	313.1

eter is scheduled to be finished during late 1960.

These lines will replace the use of fuel oil in the big industrial installations and power plants of the city of Torreon and in big industries and power plants of the southern part of the states of Veracruz and Puebla, and of Mexico City. Present estimates show that the gas from these lines will decrease by 50,000 bbls. per day the demand for fuel oil during the next two years, increasing by about 300 million cubic feet of gas per day the industrial market for gas. That means that gas consumption will triple in very short time. After this happens, and for a period of about 10 years, the demand for gas will increase at a rate of 8% per year, which has been the rate of increase of demand of energy during the last 20 years.

This increased rate of energy demand is the highest of any country known to the writer, and shows the importance of the industrial development of Mexico.

As a natural development of the oil and gas industry, Pemex has a program to establish a group of important petrochemical plants, and orders for the equipment of some of them have already been placed.

Present program includes the building of the following plants to be ready between 1962-64 (Table D).

At the end of 1959 there were 3 big absorption plants in the country, and engineering work was being done to build additional absorption plants.

Part of these plants are going to be built and operated directly by Pemex, and part of them will be constructed and operated by combines of Pemex and private capital, according to the limits of the Mexican Petroleum Law.

At the time when pipelines and petrochemical plants of gas under program will be finished, the gas industry of Mexico is going to be one of the most complete industrial set-ups outside of the United States.

Table B
USE OF GAS IN MEXICO DURING 1959

	MMCFD	Percentage
Domestic demand	175	19.6
Exports	147	16.4
Repressuring and gas lift	326	36.4
Internal consumption	77	8.6
Shrinkage	43	5.1
Gas flared (includes sour gas) (x)	125	13.9
Total production	895	100.0

(x) Temporary condition until new absorption plants and pipelines enter in operation

Table C
IMPORTANT ABSORPTION PLANTS IN MEXICO

Name of Plant	Starting of Operation	Daily Capacity MMCFD	Liquid Production Bbls. 1959
Poza Rica	1947	230	2,555,000
Reynosa	1951	300 (x)	1,898,000
Ciudad Pemex	1959	300 (x)	4,745,000
			9,198,000
La Venta	1962 (xx)	50 (xx)	1,400,000 (xx)

(x) Programmed for expansion to 500 MMCFD.
(xx) As programmed, this absorption plant will treat the gas from the new oil fields in the Eastern part of the Isthmus district.

Table D
PETROCHEMICAL PLANTS UNDER PROGRAM

Product	Number of Plants	Scheduled	Individual Capacity
Ammonia	3	1962	200 Tons/day
Aromatics (Platforming)	1	1962	5000 Bbls/day
Detergents	2	1 operating	47 Tons/day
(Duodecil Benzene)		1962	47 Tons/day
Polyethylene	1	1962	12,000 Tons/year
Synthetic Rubber	1	1963	30,000 Tons/year
Tetraethyl lead	1	1963	15,000 Tons/year
Acetylene and Alcohol	1	1964	Under study
Phenol and Acetone	1	1964	Under study

Research report

(Continued from page 12)

that of a monoport whose area equals the total area of the multiport, including the spacing between each port. In certain instances a factor for port spacing was also included.

Certain other factors regarding the performance of burners in an appliance also were considered. Flows of ambient air around a burner port were shown to have no effect on flashback limits—they generally lowered the burner flows for blowoff and yellow-tip limits. Ambient flows of inert gas around the flame base virtually eliminated stable rich flames. Flashback and blowoff limits were found to be inverse functions of ambient pressures, a relatively minor effect within the pressure range that most gas appliances operate. Theoretical interpretations of most of the data were developed. All told, the information correlated factors for burners in appliances with the fundamental flashback, blowoff, and yellow-tipping characteristics of the fuel gas and extended the practical applicability of the latter data to burners in free air and in appliances. These two reports (the foregoing R.I. 5225 and the present report) should do much to aid in designing gas appliances and in predicting their performance with a variety of fuel gases.

The present report contains 60 pages and 57 figures. Copies can be obtained from the American Gas Association, 420 Lexington Ave., New York 17, N. Y. for $2.00 per report. Copies of R.I. 5225 can be obtained from the Publications-Distribution Section, Bureau of Mines, 4800 Forbes Ave., Pittsburgh 13, Pa.

Gas cooling

(Continued from page 22)

nearly every theatre in the country is air conditioned with mechanical equipment, and of course the same goes for a growing percentage of office buildings, stores, plants, schools, etc. On the residential front there are more than 5½ million American homes with some form of summer air conditioning—an increase of ¾ million during the past year. Texas leads in total households equipped with room or central air conditioning with about one-half million. However, New York State runs a close second, with more than 400,000. Interestingly enough, Washington, D. C. has the highest saturation of residential air conditioning, with one-third of the households in the capital enjoying air conditioning in some form.

In 1960 it is expected that another ¾ of a million homes will be equipped with some form of climate control, including at least 200,000 homes outfitted with central air conditioning systems, most of these being new homes. With slightly over one and a quarter million new homes to be built in 1960, there is still plenty of room for the air conditioning industry to grow. But it will grow fast! The FHA has suggested that in another five years a new house without air conditioning will be sub-standard, almost without respect to the part of the country in which it is located.

In line with this trend, the Air Force has been installing central air conditioning in a large portion of its Capehart Housing. As one Air Force official told me: "We have to provide year-round air conditioning if we expect to keep these men in the service." And incidentally, the Air Force gives recognition to such factors as wind and dust as well as heat and humidity in deciding which bases will be equipped with air conditioning.

The medical profession, as well as the Internal Revenue Bureau, has a high regard for year-round air conditioning. Not only is it recognized as a major factor in maintaining good health and a stable temperament, but Uncle Sam allows a tax deduction for air conditioning when prescribed for persons suffering from asthma, sinus or other respiratory infections.

Several nationwide studies, notably that by Minneapolis-Honeywell, have substantiated the fact that air conditioning is a good investment for the businessman, whether he is running a grocery store or large factory. Worker efficiency increases, absenteeism drops off, and morale goes up with air conditioning. The owning cost of a commercial or industrial air conditioning installation is invariably overshadowed by increased business or production.

One of the greatest potential markets for air conditioning in this country is in our schools. With America's growing population, bulging classrooms and teacher shortage there is an urgent need to maximize the usage of school facilities. In a number of communities this is being done with year-round, two shift schedules made possible by air conditioning. An extensive study at San Angelo, Texas showed that attendance and retention among students increased an appreciable amount with air conditioning, while teacher efficiency and morale also showed marked improvement. Colleges are following the same course. In Austin, Southern Union enjoys a substantial gas load from the 3,600-ton steam turbine system installed at the University of Texas, and during the past couple of years hundreds of tons of gas air conditioning have been installed in schools throughout our system. It is becoming increasingly evident that an air conditioned school makes good sense from a taxpayer's standpoint, particularly where economical natural gas is used to fuel the air conditioning system!

Manufacturers Ready

Today the gas air conditioning industry has both muscles and believers. Three of the biggest names in the air conditioning field—Carrier, York, and Trane—are producing sizeable numbers of large air conditioning systems. And these aren't being put in inventory, but are going into office buildings, airline terminals, shopping centers, factories, and onto gas company lines. In addition, many of the largest engine manufacturers in the country—Caterpillar and Waukesha among them—are building large capacity equipment that burns gas and in turn produces cooling. In the smaller tonnage field we have Arkla, Bryant, Ready-Power, and other engine manufacturers whose combined production in 1960 should exceed 20,000 central systems. On the immediate horizon is the free-piston engine, under development by Robertshaw-Fulton, which could very well revolutionize the residential and automotive air conditioning fields. A. O. Smith Corporation and Whirlpool are just two more of the many companies that have gas air conditioning units under development.

Another highly important aspect of this situation is the growing acceptance of—even enthusiasm for—gas air conditioning among leading architects, engineers, consultants, and government

Gaslit courtyard graces Chicago building

The eight gas lamps in the courtyard of this new apartment building in Chicago are the first such outdoor installations for multiple-unit dwellings to be used in that city. The building is also equipped with built-in gas ovens and surface burners and automatic gas water heaters and clothes dryers

officials. More and more buildings—private and government—stores, bowling alleys, and so on, are being designed with gas air conditioning as the base rather than as an alternate. And in a number of spots in the country you will find gas air conditioning outselling electric in the residential market.

Interestingly enough, there is often a close correlation between the volume of small tonnage and large tonnage gas air conditioning equipment being sold in a given area. This is nearly always traceable to the degree of enthusiasm and effort behind air conditioning at the local gas company. Where they are pushing the small package units these same companies are usually enjoying a high ratio of success with the big air conditioning jobs. An example of this correlation was shown me the other day. A beautiful new country club is being built in El Paso. One of the members of the building committee has been enjoying all the benefits of gas air conditioning in his home for several years and succeeded in selling the other committee members on putting gas equipment in the new country club.

Action Needed

Up to this point I have attempted to establish three things: 1) that there is a tremendous market potential for air conditioning; 2) that the summer air conditioning load is important to the gas utility industry; and 3) that the gas air conditioning equipment situation is now favorable for the development of that load and can be expected to improve greatly over the near term. Now, what does all this mean to a marketing man? I suggest that it means a great deal—in fact that it offers a great challenge. In many of the companies you represent it may well be that you have sales people who would like to do something about air conditioning, but very possibly the management has been preoccupied with other problems and has yet to recognize fully the potential long-range profits offered by gas air conditioning. Here is a chance to be a hero; at best to get a promotion or pay raise; at least to earn recognition for your market research department.

Why not work up a projection showing what a reasonable air conditioning load—developed over the next five or ten years—can mean to corporate profits. You may need some help from your operating people, rate department, sales organization, and others in the company. In fact, it is my experience that any report you submit to management will receive greater attention if you have included ideas and attitudes on the subject from other staff personnel. And when you deliver such a report to management, don't overlook the importance of sending copies to those other staff members. The likelihood is that the boss may discuss your report with these other people first and it sure helps to have them pre-sold. Incidentally, I have just come from a meeting of gas industry sales executives in New Orleans and I heard some complaints about the way marketing men communicate: these salesmen and others, who perhaps are more important in their organizations, have trouble understanding their marketing specialists. This emphasizes the importance of keeping any air conditioning studies that you might make on a down-to-earth, easy to understand basis.

In my own opinion, the greatest crisis we face in business today is the lack of decision-making at the management level. As I heard it expressed recently, there are too many democrats and bureaucrats and not enough autocrats. This is true because when the democrat faces a problem he appoints a committee; the bureaucrat would establish a new department; while the autocrat would make a decision and let the devil take the hindmost.

Let me suggest that the hour of decision is at hand for the gas industry. Gas air conditioning today is in the crawling stage, but tomorrow it should be walking and very soon now it could well be running a really strong race with our very fine competitors. I hope that your company is not suffering from cerebral sclerosis—hardening of the head—and will enter into the race with the same degree of enthusiasm that has marked the gas industry's response to other great challenges. And let's not forget that you and I are caught in the middle of this latest and perhaps greatest challenge. It is up to us to apply the pressure and prick the conscience, if need be, of our own managements to get them to act quickly and effectively. The key is within our grasp that could very well unlock the door to this important new load for our companies and a larger share of the consumer's dollar. If you and I can help fill that soup bowl with profits, then our industry—our companies—and we as individuals can look forward to a gas-lighted future!

General management

(Continued from page 9)

Island in the Thames Estuary. If at some future date we can purchase liquefied domestic or foreign gas at a lower cost we certainly must be willing to listen to and act upon such an offer."

At the general luncheon meeting on Tuesday, Dr. P. P. Pirone, plant pathologist, New York Botanical Garden, spoke on the response of shade trees and other vegetation to natural gas.

Drawing conclusions from research conducted in cooperation with The Brooklyn Union Gas Co., he said: "Very frankly, too many companies are still paying claims for alleged injury to vegetation by natural gas."

Citing examples of experiments and observations recorded during several tests, Dr. Pirone stated that they had reached the conclusion that natural gas is nontoxic to plant life.

In the case of damage claims made for dead or dying trees, simply because of their proximity to a leaking gas main, Dr. Pirone suggested companies would be well advised to call in a qualified person to determine other probable causes for the tree's demise before honoring such claims.

In a Monday afternoon conference of the Purchasing and Stores Committee, Cecil O. Ellis, committee chairman, presented a progress report on activity of the material handling subcommittee, and urged greater participation in the committee's work by members. He stressed that success of the committee is contingent upon the participation of members in its activities.

Following the report by Mr. Ellis, William Frame, director, research and technology, National Tube Division, U. S. Steel Corp., discussed the effect of the B31.8 code on the purchasing and stores functions.

After explaining the code, what it represents, what it includes and why it was developed, Mr. Frame noted that "the code committee is an active and continuing one and is organized to keep the code up to date and to make any

changes or revisions which can be justified by experience which will make a better code."

These changes will be published as cases in *Mechanical Engineering* according to Mr. Frame.

A third speaker at the committee meeting, Thomas F. Harrigan, assistant manager, Stock Control Bureau, Purchasing and Stores Department, Consolidated Edison Co., N. Y., spoke on the application of electronic data processing to purchasing and stores operations.

Using slides to present reproductions of reports being made available to his company through use of computer systems, he said, "In the foreseeable future, we expect the computer to specify the economic order quantity for many of our stock items and to automatically adjust the reserve and order point quantities in accordance with the usage pattern."

"These and many other innovations are being planned. There seems to be no end to future possibilities. The change at our company has already proved rewarding and we are confident that it will continue to be gratifying to Purchasing and Stores, as new applications are developed."

The management approach to executive development was presented in a talk by James L. Hayes, dean, School of Business Administration, Duquesne University. Particular emphasis was placed on a critical review of current programs.

In closing, Dean Hayes cited the major things wrong with today's plans for executive development.

Included in his list were: failure to set objectives; lack of diversified development; separation of development from the job; no encouragement for programs from top executives; programs that are too restrictive; and poor delegation of work in on-the-job programs.

Highlight of the conference was a paper given by Antonio G. Rojas, exploration manager, Petroleos Mexicanos.

In his paper, he outlined the history and development of the Mexican natural gas industry. Included were reports on exploratory work being conducted in known and unknown fields.

According to Mr. Rojas, "Mexico's gas consumption will triple in a very short time. Present estimates show that fuel transmission lines being constructed will increase the industrial market for gas by about 300 million cubic feet per day."

As a natural development of the oil and gas industry, Mexico has a program to establish an important series of petrochemical plants.

The present program includes the building of three ammonia plants, two detergent plants and one plant for each of the following: Polyethylene synthetic rubber, tetraethyl lead, acetylene and alcohol, phenol and acetone. All of these plants are scheduled for completion by 1964.

Some of the plants will be built and operated by Pemex—the national petroleum industry of Mexico—and in other instances, by a combination of Pemex and private capital.

Predicting the future of the gas industry in Mexico, Mr. Rojas stated, "When pipelines and petrochemical plants of the program are finished, the gas industry of Mexico is going to be one of the most complete industrial set-ups outside of the United States."

Justin R. Wolf, Washington attorney, was luncheon speaker at the final luncheon on Wednesday. Citing current judicial decisions as illustrations, he gave delegates a broad outline of what these decisions mean to the industry in distribution, production and expansion of natural gas utilities.

In summing up his talk, Mr. Wolf said: "Speakers during the past three days have presented a comprehensive survey of management, rate regulation, technical improvements, research developments and a competitive outlook for the years ahead." The decisions of the court cited by Mr. Wolf will, he stated, have great impact on the future of natural gas and the future of the industry.

Facts and figures

(Continued from page 18)

totaled 75,900 units and represented a decline of 12.8 per cent from the 87,000 units started in January, 1959. January starts of private new homes were at a seasonally adjusted annual rate of 1,210,000, dropping 9 per cent from the December mark of 1,330,000. Federal Housing Administrator Norman Mason indicated that private home starts for all of 1960 probably will be 1.2 million, slightly under the 1.3 million registered in 1959.

Gas range shipments during January were down 11.2 per cent from the comparable month a year ago, while shipments of gas automatic water heaters totaling 215,900, represented a decline of 18.9 per cent from a year ago. Shipments of gas-fired central heating equipment during January totaled 73,508 units, representing a drop of 3.5 per cent, and shipments of gas dryers were down 5.6 per cent from a year ago.

Accounting

(Continued from page 26)

Therefore, 10 test tickets in any particular classification would be projected to 81 contacts ($10 \times 8.1 = 81$).

The information developed from this system, by pointing to aspects of company operations which require changing, results in better service to customers. It is also useful to departments within the company in determining the value of efficiency award suggestions, audits, cost accounting and other special studies where it is necessary to know the number of complaints, inquiries or requests received on specific types of customer contacts. Prior to this system, such data could only be developed through special analysis or tests. The real value of knowing the precise causes of customer contacts lies in the opportunity afforded the company in keeping a constant and continuing check on its operations, with improved service to customers being the result.

Jim Backus

(Continued from page 19)

Mr. Backus' voice asks: "Are you a shower shiverer?" The camera then switches to Mr. Backus standing beside a water heater, who then explains, "You need an AUI-40 gas water heater."

Another announcement shows artwork of the bones, paper dolls, and banana peels simultaneously with Mr. Backus' words: "Bones . . . paper . . . peels . . . gone in a gas incinerator . . . indoors."

All manufacturers and distributors have been urged to conduct their own individual promotions through dealers during the campaign period.

The company's usual one-third cooperative advertising plan will be in effect on a direct-dealer basis for all media through dealer-contact men.

Jim Backus film spots will appear on Sundays, Tuesdays and Thursdays in the East Ohio area.

Industry news

New installation standard developed

THOSE INVOLVED in the installation of gas appliances and piping may now refer to a single American standard as a result of cooperation between the gas industry and 16 national groups in developing a revision of the widely known American Standard Installation of Gas Appliances and Gas Piping in Buildings (excluding undiluted liquefied petroleum gas), Z21.30-1954. The revision has been approved by the American Standards Association as American Standard Installation of Gas Appliances and Gas Piping, Z21.30-1959, and includes all fuel gases. It is published by A. G. A., which sponsors the ASA project concerned with approval and installation requirements for gas-burning appliances. The gas piping portion of the standard has been extended to cover all piping from the outlet of the meter set assembly.

The basic standards in the publication apply only to low-pressure gas piping systems (not in excess of ½-pound psi or 14 inches water column) extending from the outlet to the meter set assembly or to the outlet of the service regulator, when a meter is not provided, to the inlet connection of appliances and to installation and operation of residential and commercial gas appliances supplied through such systems. They cover design, fabrication, installation, tests, and operations of such systems for natural gas, manufactured gas, undiluted liquefied petroleum gases, liquefied petroleum gas-air mixtures, or mixtures of any of these gases.

These standards are not intended to cover systems or portions of systems that supply equipment engineered, designed, and installed for specific manufacturing production processing and power-generating applications, such as large and high-pressure boilers, melting-and-treating furnaces, and production ovens. For industrial plants, reference should be made to the American Standard Code for Pressure Piping, Section 2, B31.1-1955.

Organizations having representatives on ASA sectional committee Z21 are: A. G. A., Gas Appliance Manufacturers Association, American Home Economics Association, American Institute of Architects, American Petroleum Institute, Associated Factory Mutual Fire Insurance Companies, Canadian Gas Association, Federal Housing Administration, Mechanical Contractors Association of America, Liquefied Petroleum Gas Association, National Association of Plumbing Contractors, National Board of Fire Underwriters, National Warm Air Heating and Air Conditioning Association, Clothing and Housing Research division of U. S. Department of Agriculture, U. S. Bureau of Mines, U. S. Public Health Service, and Quartermaster Corps of the U. S. Department of the Army.

Some 40 American standards, intended to protect the public by assuring the safe and satisfactory utilization of gas, have been developed through this committee.

The revised American standard, Z21.30-1959, is now available at 50 cents a copy from the American Standards Association, Department PR 122, 10 East 40th Street, New York 16, N. Y.

Congressman Landrum will address Southern Gas Association convention

CONGRESSMAN PHIL M. LANDRUM, coauthor of the nation's newest labor law, will be a featured speaker at the Southern Gas Association's 52nd annual convention at Galveston, Texas, April 25-27, 1960.

Representative Landrum, the Georgia Democrat whose name became nationally known through his sponsorship of the Landrum-Griffin Act, will speak at the SGA's Human Relations Session, on the opening afternoon of the convention.

Another famed speaker will be the mayor of Kansas City, Mo., H. Roe Bartle, who will appear at the closing luncheon.

Wister H. Ligon, president of A. G. A. and a past president of SGA, will speak at the Tuesday morning general session. Also speaking at that session will be Dr. Norman N. Royall, Jr., professor of mathematics and physical science at the University of Kansas City. He will talk on "The Shadow of the Next Industrial Revolution." Automation is here, Dr. Royall points out, but most people don't understand how or why. His talk will set these new developments in contrast with the first industrial revolution.

Wednesday morning's general session will be turned over to a panel of editors who will examine the future of the gas industry: J. Fred Ebdon of *Gas;* Dean Hale of the *American Gas Journal;* Harold W. Springborn of *Gas Age;* and Melvin A. Judah of *Pipe Line Industry.*

The newest gas equipment will be on display in the Convention Center Exhibit Hall. Air-conditioning units that have been field-tested and that are now available for sale and installation will be shown by Arkla Air Conditioning Corp., Bryant Manufacturing Co., Carrier Corp., Comfort Products, Inc., Ready-Power Co., and York Corp. Latest model gas refrigerators will be shown by Kirk Industries, Inc., Norge Sales Corp., and Whirlpool Corp. Arkla will show its new "Gasign," designed to replace neon or electricity on buildings and factories, and Siegler Corporation will exhibit its infrared bathroom heater.

Fontainebleau goes to gas

FLORIDA'S FABULOUS hotel, the Fontainebleau at Miami Beach, has switched from oil to natural gas for heating and water heating, according to a joint announcement by Ben Novack, president of the hotel, and P. C. Crowen, president of Peoples Gas System, Tampa, Fla.

Formerly, the hotel used gas for cooking only, firing its boilers with oil. After Peoples Gas System converted to natural gas, the hotel converted its boilers to the new fuel on a contract for one million therms a year.

Soviet visitors view Miami gas exhibit

A group of Russian architects and engineers, here to study American city planning and construction, were recently guests of the Florida-south chapter of the American Institute of Architects in Miami, Fla. They attended a cocktail party at the Miami "buildorama" where they viewed the exhibit of the Greater Miami Gas Institute. Left to right above are: an unidentified Soviet architect; C. Robert Abele, chapter president; Jean Noguerras, buildorama hostess; Vladimir Kucherenko, chairman of the Soviet State Committee on Construction; Igor B. Polevitsky, well-known Miami architect; and an unidentified guest

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● **Atlantic Seaboard Corp.** has had its application to construct and operate natural gas facilities accepted for filing by the FPC. In order to meet the increased requirements of its existing customers, the company proposes to build nearly 21 miles of loop lines in Virginia and West Virginia and a new 8,000 horsepower compressor station at a total cost of $5.6 million.

● **Cities Service Gas Co.** has been authorized to construct and operate approximately 15 miles of transmission loop lines in Kansas and to add 340 horsepower to an existing compressor station. These natural gas facilities, to cost $817,000, will meet the growing demands of customers in the Ottawa-Sedalia-Carrolton area.

● **Columbia Gulf Transmission Co.** has filed a budget-type construction application to facilitate securing newly available gas reserves. The total cost of facilities to be built will not exceed $2.5 million, with the cost of single projects limited to $500,000.

● **El Paso Natural Gas Co.** has received temporary authority to construct and operate 121 miles of pipelines of various diameters in Washington and Oregon at an estimated cost of $10.5 million. The new line will extend from a point on the main line in Washington and terminate at Eugene, Oregon. The new facilities will be used to make deliveries to Northwest Natural Gas Co. at Portland, Salem, Albany, and Eugene, Oregon. In another application, the company has been temporarily authorized to construct and operate pipeline facilities estimated at a cost of $1.5 million. The proposed facilities include 64 miles of pipeline that varies in diameter, a 240 horsepower compressor station, and a dehydration plant designed to handle 25 million cubic feet of natural gas daily.

● **Equitable Gas Co.** was granted temporary authority to construct and operate natural gas facilities at an estimated cost of $1.6 million. The facilities include 21 miles of pipeline in West Virginia and Pennsylvania and would be used to increase delivery of the company's West Virginia gas supply by 15 million cubic feet daily. The current authorization is part of an over-all project costing $5.4 million that has been designed to alleviate its transmission system limitations. Improvements will include the better utilization of the delivery capacity of various storage pools.

● **Natural Gas Pipeline Company of America** received approval of its budget-type application to construct natural gas facilities, as they are required, for adding new natural gas supplies when available. Total cost of the facilities to be constructed will not exceed $2 million, and any single project is limited in cost to $500,000.

● **Transcontinental Gas Pipe Line Corp.** has proposed in a budget-type application to construct natural gas facilities when needed for acquiring new gas supplies as they become available. These facilities will not exceed $3 million in total cost and $500,000 for any single project.

Rate cases

● **El Paso Natural Gas Co.** has filed a $21.2 million or 8.4 per cent annual wholesale natural gas rate increase, which became effective March 24, 1960, for 34 wholesale customers in Arizona, California, New Mexico, and Texas. The need for higher rates is due to increased cost of purchasing gas, increases in all other costs, and the claim to a 6¾ per cent rate of return. Previously the company was permitted a six per cent rate of return on properties beyond the well mouth and an 8.61 per cent return on its well mouth properties, for an over-all rate of return of 6.35 per cent on its entire rate base. Two former rate increases totaling nearly $42 million continue to be collected subject to refund.

● **Lake Shore Pipe Line Co.** recently had its proposed $833,000 or 15.3 per cent annual wholesale natural gas rate increase suspended until early this month. The proposed increase, which would affect its affiliate and only wholesale customer, is based chiefly on an increase sought by the supplier, Tennessee Gas Transmission Co. In addition, the company cited an over-all increase in operating costs and the need for an increase in the rate of return from 6¼ to 6½ per cent.

● **Lone Star Gas Co.** has filed a proposed $1.3 million, or 27.3 per cent annual wholesale natural gas rate increase, which would affect one customer, the Natural Gas Pipeline Company of America. The increase amounts to 4.1 cents per thousand cubic feet (from 15 cents to 19.1 cents) and would offset pending supplier increases of 5.8 to 16.8 cents per thousand cubic feet.

● **Trunkline Gas Co.** has applied for a $5.4 million or 8.4 per cent annual wholesale natural gas rate increase to become effective early this month for its parent, Panhandle Eastern Pipe Line Co. and 25 other customers in Illinois, Kentucky, Louisiana, Michigan, Mississippi, and Tennessee. Still pending is a $9.6 million or 25.5 per cent annual wholesale rate increase suspended last September, 1959. The new filing will include adjustments in gas purchase costs that were excluded from the suspended proposed increase.

● **United Gas Pipe Line Co.** has filed a proposed $11.6 million or 10.3 per cent annual wholesale natural gas rate increase. The higher rates would become effective March 13, 1960 for about 50 wholesale customers in Alabama, Florida, Louisiana, Mississippi, and Texas. The company is continuing to collect, subject to refund, five previously suspended increases. The filing is based on higher supplier charges and the claim for a 6¾ per cent rate of return.

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—JANUARY 1960

	Number	Annual Amount
Tax rate increases allowed without suspension	1	$ 1,110
Other rate increases allowed without suspension	30	36,698
Rate increases suspended	209	3,896,246
Total rate increases	240	3,934,054
Tax rate decreases allowed without suspension	1	349
Other rate decreases allowed without suspension	3	7,463
Total rate decreases	4	7,812
Total rate filings	650	—
Total rate filings acted on from June 7, 1954 to January 31, 1960	44,633	—
Rate increases disposed of after suspension	78	986,385
Amount allowed	—	632,926
Amount disallowed	—	—
Amount withdrawn	—	353,459
Rate increases suspended and pending as of January 31, 1960	3,196	$157,226,405

● In other actions, the FPC has announced that after March 1, 1960, producers or pipeline companies that put increased rates into effect, subject to refund, must agree to refund amounts subsequently disallowed with interest at seven per cent per year, as against the former six per cent.

● Permanent certificates were granted to 17 independent producers for the sale of 100 million cubic feet of natural gas daily to **El Paso Natural Gas Co.** from the Aneth Field, provided the initial price is lowered from 20 cents to 17.7 cents per thousand cubic feet. The Commission also granted El Paso Natural Gas Co. a permanent certificate for $26 million of natural gas facilities required to transport gas sold by producers into its system.

● In a decision filed by Presiding Examiner Purdue, the **East Tennessee Natural Gas Co.** proposal to provide additional service to Middle Tennessee Utility District was denied. This additional service was approved in 1956. However, the district was unable to finance the required lateral pipeline in the ensuing 2½ years. East Tennessee Natural Gas Co. then proposed to construct the 24 miles of lateral pipeline and appurtenant facilities at a cost of $510,000. This proposal was denied by the commission on the basis that deficiencies in the cost of service relating to this project would be subsidized by other customers of the company in the form of higher rates.

Berkshire Gas counts artist Norman Rockwell among its users

THE BERKSHIRE GAS CO., Pittsfield, Mass., in 1958 gained among its new customers famed illustrator Norman Rockwell. A recent *Saturday Evening Post* article series on Mr. Rockwell's life featured in its first installment a photograph of the gas heated and air-conditioned studio that made Mr. Rockwell a Berkshire gas user.

When Mr. Rockwell bought the property he now occupies in Stockbridge, Mass., one of his main reasons for doing so was an old barn in the rear of the premises that was readily adaptable for conversion to a studio. In having the building entirely remodelled, he included in its modernization a perimeter-designed, Crane gas-fired forced warm air conditioner, with 100 MBtu's input, using a thermobase baseboard and prefabricated Duc Pack ducts.

When the heating layout was designed, adequate provision was made for the possible addition of air conditioning. The installation was completed in the autumn of 1958, and to date Berkshire has received no requests for service from Mr. Rockwell.

Near the old barn on the property was an ice-storage building, which has since been converted to furnish additional studio space. A gas-designed, Crane suspended forced warm air conditioner was used in this structure, since there was no cellar under the building. An automatic gas-fired water heater also was installed on the property.

Perhaps the Berkshire Gas Company's most famous customer, Norman Rockwell is pictured above in his gas equipped studio. Converted from an old New England barn, Mr. Rockwell's work place is in one of a number of old buildings on his property of which some date back to as early as 1832

Attesting to Mr. Rockwell's confidence in the gas installations and the cleanliness of Berkshire gas fuel is the fact that America's number one illustrator frequently stores completed art work in the basement adjacent to the heating unit.

World's most powerful underground gas storage compressor completed

MICHIGAN CONSOLIDATED GAS Co., Detroit, Mich., has completed a construction project to double pumping facilities at its Six Lakes station, making it the most powerful underground gas storage compressor station in the world.

The utility has added 20,000 horsepower at the station located 50 miles northeast of Grand Rapids. The $4.8 million project brings total pumping facilities there to 40,000 horsepower, 25 per cent more powerful than the next largest storage installation.

Michigan Consolidated now has invested nearly $20 million in the Six Lakes project. It spent an additional $6.2 million to construct 53 miles of 30-inch diameter pipeline between Detroit, and Elsie, Michigan, parallel to its two existing 24-inch lines.

Illinois utilities attend New York seminar

THE IRVING TRUST CO. recently sponsored in New York, N. Y., a special three-day seminar on utility financing and related matters for the State of Illinois. The seminar was one in a series initiated by Irving Trust for the purpose of keeping organizations better informed on such matters as financing, factors affecting the money market and business developments, and bond offerings for large-scale investment.

The group attending the seminar heard C. S. Stackpole, managing director of A. G. A., speak at the first session on "The Role of the Utility Trade Association." John F. Childs, vice-president of Irving Trust, spoke at another meeting on "Aspects of Regulation as Viewed by the Investor," a subject of particular interest to utility commissioners.

The local organizations invited to the sessions in New York included the Illinois Commerce Commission, Central Illinois Electric and Gas Co., Central Illinois Light Co., Central Illinois Public Service Co., Commonwealth Edison Co., General Telephone Company of Illinois, Illinois Bell Telephone Co., Illinois Power Co., Iowa-Illinois Gas and Electric Co., Northern Illinois Gas Co., Peoples Gas Light and Coke Co., and Union Electric Co.

Central Electric and Gas divisionalized

EFFECTIVE MARCH 1, 1960, three new operating divisions of Central Electric and Gas Co., Lincoln, Nebr., have assumed responsibility for all phases of the company's natural gas operations in 65 communities in Nebraska and South Dakota, and electric operations affecting 25 communities in South Dakota. The decentralized organization will enable the company to continue to maintain the highest standards of natural gas and electric service in each community.

Three new division managers were appointed. Glen E. Bonacker will manage the newly created Lincoln division. The company's vice-president, E. C. Deane, has been named manager of the new South Dakota division, with headquarters at Sioux Falls, S. D. Dwight T. Edwards has been appointed manager of the new Nebraska division, with headquarters at Columbus, Nebr.

Gas heats inside and out

This newsboy ignores freezing weather, as he works by the warmth of infrared radiant gas heaters recently installed at The Peoples Gas Light and Coke Co. building, Chicago, Ill.

Annual reports for 1959 published by gas companies

EACH YEAR the A. G. A. MONTHLY publishes summaries of the annual reports of member utilities, pipeline companies, and manufacturers. These capsule reports will be presented alphabetically here and in subsequent issues.

● **Brockton Taunton Gas Co.,** Brockton, Mass., reported that surveys indicate 20 per cent of the total new building permits issued during 1959 in the metropolitan Boston area were in territory served by the company. Several all-gas supermarkets and shopping centers were added on company mains during the year. The new dormitory and dining hall under construction at Bristol Agricultural School will use gas for heating and cooking. Other new gas customers include the builder of a 100-home development that will utilize gas for heating, water heating, and cooking; a manufacturer of shoe supplies, whose new plant will be gas heated; and a coin-operated laundry, which has installed year-round gas air conditioning.

● **The Brooklyn Union Gas Co.,** Brooklyn, N. Y., recorded all-time highs in sales of appliances, in new space-heating accounts, and in projected revenue from additional appliances in customers' homes and businesses. The new Coney Island territory, consolidated with the company in June, 1959, contributed $359,000 to the record total for appliance sales. More than 18,000 new space heating customers were added in 1959 in a market that continues to be the firm's greatest gas load builder. Installation of new gas equipment produced estimated annual revenues of over $6 million, making 1959 the best year of growth in the company's history.

● **Central Hudson Gas and Electric Corp.,** Poughkeepsie, N. Y., reported a rapid recovery from the recession of 1958, with a resumption of its former steady growth. Earnings on common stock outstanding at the year's end were $1.41 per share, as compared with $1.33 per share for 1958. The construction of the third unit of the Danskammer Point steam station doubled the capacity of that station to 280,000 kilowatts of electric power. In the face of further inflation, the company intensified cost reduction in 1959 by the introduction of automation of controls at certain of the company's generating stations, sub-stations, and gas-regulator stations. It is expected that completion of the proposed Newburgh-Beacon Bridge on the Hudson River will spur economic development in the company's territory by providing one of the few direct east-west routes in the region. Central Hudson currently services such large gas users as Vassar College and the United States Military Academy at West Point, where gas is used for cooking, water heating, and space heating.

● **Citizens Gas and Coke Utility,** Indianapolis, Ind., experienced an increase of $51,514 in earnings after the loss suffered in the 1958 recession. Principal factor contributing to the improvement was the recovery of the foundry industry in 1959, resulting in an increase in the net credit from coke and other by-products. Gas revenues increased during the year. Increased use of the fuel and a 10 per cent increase in the price of natural gas in 1958 resulted in increased costs for gas over the previous year. New customers totaled 4,836 in 1959, the fifth highest annual such increase in the utility's history. The company has made a good start in the air-conditioning field, with new residential and commercial customers added to company lines. Laundromats in Indianapolis have increased in the past six years from 39 to 150, all using gas for both water heating and clothes drying. An adequate gas supply continues to be the firm's principal problem. Since the most economical solution appears to be underground storage, Citizens Gas and Coke intensified its search for a storage field, leasing substantial acreage for an exploration program.

● **The Coleman Co.,** Wichita, Kans., reported on its balance sheet a ratio of current assets to current liabilities of 3.9 to 1, a net working capital increase, no current indebtedness, and capital expenditures within depreciation allowances. This year marked the first full year under the company's plan of divisionalization, which contributed materially to the company's progress in 1959. The mobile home division reported 40 per cent of all mobile homes manufactured in America heated by Coleman. Air conditioning too showed great gains last year, though the company must battle against an expected 10 per cent drop in the home building market for 1960. Adequate stockpiling and fine cooperation from steel companies enabled Coleman to operate at a near normal level during the entire steel strike, an adverse factor of 1959.

● **The Columbia Gas System, Inc.,** New York, N. Y., recorded a year of continued growth in operations. The volume of gas delivered was greater than ever before, with revenues reaching their highest in Columbia's history. Operations of the former Gulf Interstate Gas Company were coordinated with the system's operations. However, in spite of the growth, net income fell short of expectations due to the impossibility of obtaining higher rates promptly enough to offset the effects of inflationary conditions that continue to plague the nation's economy. In spite of the effects of the steel strike, gas sales increased during 1959. About 53,000 new space heating customers were added, and about 85 per cent of residential and commercial customers served at retail were customers in this category. A relatively greater unsaturated space-heating market exists with respect to the ultimate consumers served by the wholesale customers, than with respect to those served directly at retail by the system. The company, which currently serves more than 2,500 industrial customers, is expected to increase its industrial sales at a faster rate than sales for residential purposes. In general the nation's industry develops at a faster rate than the population grows, and Columbia is located in an area that is particularly favorable to industrial development. The system's reported proven reserves including those held under leasehold or by fee title, as well as those under contract, aggregate approximately 14.7 trillion cubic feet.

● **The Connecticut Light and Power Co.,** Berlin, Conn., achieved new highs in sales and earnings during 1959 according to the report to stockholders. Gas sales were 7.8 per cent higher than in 1958. A general slowing in the traditional rate of increase in residential gas sales was noticed here as throughout the country, with the steel strike cited as a contributing factor. Additions to the company's gas facilities in the state included five propane gas storage tanks and facilities for handling LP-Gas at Norwalk and five gas storage tanks and a new gas booster in Waterbury. In the firm's northern division, six towns were converted to straight natural gas and an alternate natural gas supply line added to company facilities. A new central storehouse completed at Berlin in 1959 now permits substantial inventory savings and more efficient handling of materials. The company also achieved this year the lowest lost-time accident rate in company history. The general outlook for 1960 is good, as the Connecticut Turnpike continues to attract new industry to areas served by the highway and as business forecasts for the year remain encouraging.

● **Consolidated Natural Gas Co.,** New York, N. Y., reported an all-time high in gas sales revenues, including industrial gas sales which went up 19 per cent in spite of the steel strike. However, because of delays encountered in securing necessary rate increases, earnings did not sufficiently increase to represent an adequate return on the investment in the business. Important markets for gas included commercial cooking, the rapid growth of coin-operated laundromats, and commercial air conditioning. The recent introduction of promotional rates for electricity is being countered by the firm in a stepped-up advertising campaign to insure gas heat in virtually all homes in its territory. Among industrial clients of the company is the National Aeronautics and Space Administration whose wind tunnel at Cleveland, Ohio tests aircraft components, with a battery of gas burners producing temperatures of 300° F. to 1,000° F. The unit burns 600,000 cubic feet of gas an hour when simulating top-speed conditions.

● **Consumers Power Co.,** Jackson, Mich., recorded a jump in sales of natural gas from

less than 84 billion cubic feet in 1958 to 98.5 billion in 1959. For many years the company's natural gas sales had been limited to the amount available for marketing. During 1959 increased gas deliveries to a subsidiary of the company were authorized and new natural gas supply contracts approved. The firm noted a growth in the number of space heating customers as a result of the easing of the supply situation. Operating revenue for operations was up 13 per cent, 34 per cent of it from increased gas sales. The number of billion cubic feet of gas sold was up 18 per cent over the amount for 1958. During the year the company's total number of gas customers passed the half-million mark, accompanied by a record gas send-out. Storage fields supplied about 91 per cent of the gas to meet this peak. Other developments during 1959 included the purchase of two new gas fields, the occupation of new company buildings, and centralized control of the gas system of Consumers Power and its subsidiary Michigan Gas Storage, with dispatchers using telephone and radio to direct the operation of storage fields, compressor stations, and gas transmission lines. Inflation remained a serious threat to the company as to the nation. Since inflation is especially serious for utility companies, whose rates are regulated, stockholders were urged to be on guard against inflationary trends.

● **The Dayton Power and Light Co.**, Dayton, Ohio, devoted its report to the battle against rising costs. The company has planned to go 350 feet underground in its efforts to reduce overhead by building a seven-million-gallon cavern in nonporous shale for the storage of liquid petroleum gas. Storing the petroleum gas in the cavern, drawing it off, gasifying and mixing it with natural gas should result in considerable savings. The project will include installation of the latest types of remote metering and control. The company's gas division reported that for the seventh consecutive year it has installed over 100 miles of new gas mains. The division expects to be serving 200,000 customers in 1960. Concerning gas rate increases, the company sees the holding down of rising costs as only part of the solution of the problem. The other part is to obtain a higher price where there is no alternative.

● **Delaware Power and Light Co.**, Wilmington, Del., reported a growing need for company service by an ever-increasing number of homes and commercial and industrial enterprises locating in the Delmarva Peninsula area. Weather conditions this year brought greater than normal use of air conditioning and heating equipment. Although the company's net generating capacity exceeded its new system peak load established during the year, estimated load growth will require additional generating capacity, expected to be in commercial operation by 1961. The average annual use per residential gas customer increased 3,925 cubic feet or 7.3 per cent over the prior year. Total revenues for the year increased 6.0 per cent over 1958. Several small obsolete generating plants were removed from the system and dismantled; despite their elimination net system generating capacity exceeded the year's peak demand by 25.6 per cent.

● **Dresser Manufacturing**, Bradford, Pa., and **Clark Brothers**, Olean, N. Y., divisions of Dresser Industries, Inc., reflected the over-all strong financial position of the parent company, in spite of a moderate decline in the earnings of shareholders. In the field of gas turbine-driven compressors, the product line introduced by Clark in 1955 is now showing promising results. These units are being used in a giant installation at the American Oil Company's gas turbine compressor plant at 'Ain Dar, Saudi Arabia. More of the units are slated for use in the Trans-Canada gas pipeline. The company expects that the natural gas industry will require an ever increasing volume of gas engines, gas turbines, and gas compressors, as gas gathering lines lengthen and formation pressures of the producing fields begin to decline. Dresser Manufacturing, the original Dresser company, expects new products that were developed during 1959 to add nearly eight per cent to the company's sales volume in 1960. The subsidiary has been very successful, for instance, in developing a new type of coupling for joining gas mains that will cut installation time by one half to two-thirds, being constructed in such a way that the cathodic protection of the line will not be affected by the use of the coupling. In foreign operations, Clark has strengthened the position of its products in France and Great Britain and looks forward to a particularly bright market in the comparatively new and growing gas-transmission industry in Mexico.

Cincinnati Gas and Electric publishes history

THE CINCINNATI GAS and Electric Company, Cincinnati, Ohio, has published a handsomely bound and generously illustrated company history, *The CG&E Story*, which takes the reader through 123 years with the firm. Fine black and white drawings of early Americana and rare old photographs make the history both informative and colorful.

CG&E was established in 1837 (though it did not begin gas distribution until 1843), about 50 years after the first white settlers came to Ohio and a little more than 30 years after Ohio became a state. The story tells of the company's growth against many odds and of persevering men who showed courage in the face of war and natural disaster.

Robertshaw acquires Microsen Instruments

NEGOTIATIONS TO acquire for a cash consideration the Microsen instrument business of Manning, Maxwell and Moore, Inc., Stratford, Conn., have been concluded between that firm and Robertshaw-Fulton Controls Co., Richmond, Va.

The line of instruments will be integrated with the industrial instrument products of Robertshaw's aeronautical and instrument division in Anaheim, Calif.

A. G. A. announces public relations competition

THE OPENING OF the competition for the A. G. A. Public Relations Achievement Award for 1960 was recently announced by James M. Beall, director of Public Information. In the first three years since its establishment, the competition has brought 20 gas companies international recognition.

Unique trophies and certificates will be awarded for top achievement in several categories—community relations, press relations, school activities, stockholder relations, employee communications, and others at the discretion of the awards jury, to be named later.

The winning entrant will receive the large and striking trophy, won by Southern California Gas Co. in 1957, Quebec Natural Gas Corp. in 1958, and Michigan Consolidated Gas Co. last year.

Official notices of entry in the contest must be returned to A. G. A. by July 15, 1960. Entries must be submitted by August 15, 1960. Any company may submit entries in any and all categories, and any entry that has not previously won an award may be resubmitted if it otherwise conforms to the rules. Information and rules booklets of the competition may be obtained from A. G. A., 420 Lexington Avenue, New York 17, N. Y.

Sinatra and Genie co-star

The Canadian Gas Association recently sponsored an hour-long TV spectacular, the first in a series to be seen by a coast-to-coast Canadian audience. Stars of the show included Frank Sinatra, Mrs. Eleanor Roosevelt, Lena Horne, Mary Costa, and the Gas Genie who popularizes natural gas

Robertshaw-Fulton introduces new low-temperature oven control

At left is the new Preway built-in gas range featuring a Robertshaw Flame Master oven control. The new device makes possible a low-temperature range, starting at 140° F., which will give homemakers more freedom in meal planning. On the right manufacturers' representatives watch a demonstration of the Robertshaw control at The Brooklyn Union Gas Co., Brooklyn, N. Y. Many gas range manufacturers have already adopted the control for their 1960 models

A. G. A. offices in D. C. change address

A. G. A. has changed the address of its headquarters in Washington, D. C. As of April 1, 1960, the offices of Manager Curtis Morris, Assistant-to-manager Franklin B. Wise, and Utilization Engineer Seward Abbott will be located at 1725 Eye St., N.W., Washington 6, D. C.

The relocation has effected a change in the telephone designation of the Washington headquarters. The new number is FEderal 7-6630.

A. G. A. offices in Washington were formerly located in the Securities Building, 729-15th St., N.W., Washington 5, D. C.

Central Illinois Light wins safety award

EMPLOYEES OF Central Illinois Light Co., Peoria, Ill., have again been given the highest award of the National Safety Council for the lowest accident frequency rate of any utility in its class in the United States.

The award was presented this week at the company's safety committee meeting by E. D. Edwards to members of Cilco's 1959 Central Safety Committee.

It represents the fourteenth first place award for outstanding safety won by Cilco employees. The accident record for 1959 was 1.06 accidents per million man-hours worked. The average for the combination gas and electric companies of comparable size to Cilco was 4.43.

A. G. A. issues new list of publications

ACCIDENT PREVENTION

• **Safety Siftings, Volume IV, December, 1959, No. 4.** One copy, free to members, 10 cents to nonmembers; more than one copy, 10 cents each to members and nonmembers. Cat. no. 21 (i)/AP.

STATISTICS

• **Report of Rate Committee, 1958 and 1959.** $2 to members, $3 to nonmembers. Cat. no. 58/S.

• **Sources of Appliance Sales Data,** another chapter in the *A. G. A. Marketing Research Handbook*. Free. Cat. no. 59/S.

ACCOUNTING

• **Customer Relations Training Package.** Includes films, records, literature, etc. $150. Cat. no. 4/A.

NEW FREEDOM

• **Blue Star one-inch, straight pin back buttons.** 3 cents each. Cat. no. 69/K.

PUBLIC INFORMATION

• **Gas Builds a Greater America.** Reprint of rotogravure section from *New York Times* of June 19, 1960. $ .0354 each; $35.45 per 1,000 copies, plus shipping charges. Cat. no. 53/PI-P.

INDUSTRIAL AND COMMERCIAL

• **Patterns of Training Commercial and Industrial Sales Representatives,** by Hayes Walter, Information Letter no. 112. First 25 copies, free; 26 or more copies, 25 cents each.

• **Why I Specified Gas Air Conditioning,** by A. G. A. Sound slide film. $50. Cat. no. 42 C.

RESEARCH

• **Noise Abatement at Gas Pipeline Installations, Volume II—Noise Suppression at Pressure Regulating and Metering Stations,** by J. M. Sharp, G. Damewood, C. R. Sparks, and M. T. Hanchett. $3.50. Cat. no. 32/PR.

Stand-by system installed

IN ACCORDANCE WITH the policy of the New England Gas and Electric Association to provide stand-by gas facilities for potential emergencies, a stand-by propane-air gas system has been installed at the Plymouth division of the New Bedford Gas and Edison Light Co., New Bedford, Mass.

The basic requirements for the installation were studied by the engineering department of the NEGEA service corporation. It was decided to provide a plant that would be as automatic as possible, designed to insure an uninterrupted supply of high-pressure gas to the town at any time, and able to meet the expected growth of Plymouth through 1968.

The system has several unique features that had previously been considered impossible to attain. Should there be any disruption of natural gas coming into Plymouth, the new stand-by plant, which is normally unattended, will: (1) start up automatically and be in full operation within 65 seconds from the time the natural gas pressure drops to a predetermined limit, (2) automatically adjust itself to the existing gas load, (3) adjust to the desired Btu within 30 seconds and maintain it within two per cent, (4) hold correct gas pressure in the entire system, (5) upon resumption of natural gas pressure, shut itself down and be ready for another emergency start if required.

The equipment is designed with emphasis on safety and automatic control devices. It is inspected daily to ascertain that equipment is in proper working order.

While the stand-by plant has not been called upon to function in an emergency, it has been completely and thoroughly tested under simulated emergency conditions by deliberately reducing the incoming natural gas pressure. During the simulated emergency tests, no gas customers suffered loss of service, had complaints as to the operation of stoves or heaters, or were aware they were not receiving the usual gas distribution.

Mrs. America is on hand for opening of Nashville service center

Mrs. America pours coffee for Ben West, mayor of Nashville, Tenn. and Wister Ligon, president of Nashville Gas Co., at firm's new service center

THE NASHVILLE GAS Co., Nashville, Tenn., recently opened a new service center to house the company's construction and service departments, including a warehouse, meter shop, and office and display areas. On hand for ribbon-cutting ceremonies at the grand opening were Mrs. Margaret Priebe, the present Mrs. America, and Ben West, mayor of Nashville.

Featured exhibit at the opening was the gas-equipped Miracle Kitchen by R.C.A. Whirlpool. A complete display of gas appliances and equipment also was set up in the new warehouse, along with cutaway models of meters and controls.

Guests invited to the festivities during the opening week included plumbers, contractors, distributors, architects, home economics teachers, and school-cafeteria personnel. Home economics classes from several schools also attended on a planned schedule.

Petroleum groups will discuss automation

AN ARRAY of technical papers covering many phases of automation and electronic controls, plus the normal use of communications systems as such, will highlight the program of the 32nd annual convention and exhibit of the Petroleum Industry Electrical Association and the Petroleum Electric Supply Association at the Municipal Auditorium, Kansas City, Mo., April 12, 13, and 14, 1960.

Among the subjects to be presented and discussed are the following:

"Electronic Control of Pipe Lines," "Applications of Data Transmission and Data-Phone in the Pipe Line Industry," "Silicon Diodes in Pipeline Rectifier Applications," and "Future Energy Sources."

Perfection issues infrared-heat brochure

EXAMPLES OF OUTDOOR areas heated with Perfection-Schwank infrared heaters are illustrated in a new, four-page, two-color brochure prepared by the Perfection division of Hupp Corp., Cleveland, Ohio.

Principles of infrared heating are explained and available gas-fired equipment catalogued, along with a variety of applications.

Copies of brochure CS-306 may be obtained from Perfection Division, Hupp Corp., 1135 Ivanhoe Road, Cleveland 10, Ohio.

Distribution in Canada is through selected distributors, and inquiries should be addressed to Hupp International Division, Hupp Corp., 1135 Ivanhoe Road, Cleveland 10, Ohio, U. S. A.

Air-conditioning seminar highlights year-round use of gas

THE STORY is getting across that air conditioning offers great health advantages and is not just an unnecessary extravagance, according to George S. Taubeneck, editor and publisher of *Air Conditioning, Heating and Refrigeration News*. He predicted vast expansion in the residential air conditioning market at a seminar on the subject presented by Michigan Consolidated Gas Co., Detroit, Mich.

He said that housewives, always a powerful influence on household spending, have discovered the health advantages air conditioning offers. He pointed out that numerous surveys show the importance on health of the air we breathe, and stressed the reduction in respiratory and other air-borne diseases where air conditioning is available.

The seminar featured a panel discussion by six representatives of gas air-conditioner manufacturers. The panel consisted of: Roy Singleton, Arkla-Servel; Fred Outwater, Trane Co.; David Hoppock, Bryant Corp.; Norman Hall, Ready-Power; Owen Kuhen, Carrier Corp. and Ray Johnson, York Corp. Discussion highlighted the advantages of gas as a year-round source of energy for heating and air conditioning. Panel experts said that gas air conditioning can be installed in any home, regardless of the type of heating system presently employed.

As evidence of the long life and dependability of gas air conditioning, one expert pointed out that his company built 132 such units in 1939 and that 102 are still operating satisfactorily 21 years later.

New aluminum pipe may eliminate coating and wrapping

COLUMBIA GULF TRANSMISSION Company of Cameron, La., a subsidiary of The Columbia Gas System, Inc., has completed installation of a mile-long test section of aluminum pipeline for delivery of natural gas.

The six-inch line links a well in the field with Columbia Gulf's Louisiana gas-gathering system, which ultimately feeds into the company's 841-mile pipeline between Rayne, La., and Leach Station, Ky.

The experiment with aluminum pipe grew out of Columbia Gulf's search for avenues to reduced operating costs. Usage of the pipe, if tests are successful, might eliminate the expensive preburial coating and wrapping of pipe currently practiced with the steel pipe now in use.

Aluminum Company of America at its plant in Lafayette, Ind., produced this new "Unistrength" pipe, a seamless, tubular product that makes possible more efficient welded pipelines by providing thicker walls at the ends of the pipe than along its length. This greater thickness at the end compensates for reduction of strength through the heat of welding. The over-all variation in thickness saves about 20 per cent in the purchase price of pipe.

Ligon will speak at Southwestern course

WISTER H. LIGON, president of Nashville Gas Co., Nashville, Tenn., and 1960 president of A. G. A., has been named principal speaker for the 35th annual Southwestern Gas Measurement Short Course to be held April 19 through 21, 1960, at the University of Oklahoma, Norman, Okla.

The three-day short course, held in cooperation with the Oklahoma University College of Engineering, will consist of 89 technical and nontechnical class sessions. Instruction offered will be diversified to interest everyone in the gas measurement industry.

In addition to the classes, the meeting will feature gas measurement equipment displays by various manufacturers, marking the first time that educational mass-flow gas measurement equipment has been exhibited.

Industrial school scheduled

THE SECOND Industrial Gas Sales School will be conducted by the Pacific Coast Gas Association at San Jose, California, May 2 through May 6, 1960.

This school does not compete with the A. G. A. school but supplements it, with added opportunities for those industrial gas engineers who are located in the West, Southwest, Rocky Mountain regions, and western Canada.

For details, address R. D. Scott, Managing Director, Pacific Coast Gas Association, 870 Market Street, San Francisco, Calif.

PGA will hold production conference

THE PENNSYLVANIA GAS ASSOCIATION has announced it will hold a production conference at Drexel Hill, Philadelphia, Pa., on April 21, 1960. Members attending the morning program will hear papers on such subjects as: "Our Latest Experience in the Production of Thermal Oil" and "Emergency Gas Pooling in New England." Martin A. Elliot, Ph.D., will speak on the role of gas in meeting future energy demands.

The latter part of the program will include a trip to the Sun Oil Company's plant in Chester, Pa., where the group will be taken on an inspection tour of an underground cavern in the process of being mined.

Chairman of the conference is Joseph M. Barnes, Jr., Philadelphia Electric Co.

Brooklyn Union offers $6,000 scholarship

THE BROOKLYN UNION GAS CO., Brooklyn, N. Y. has offered an engineering scholarship to the sons of its customers and relatives of employees, according to Joseph A. Reynolds, manager of the firm's personnel department.

The scholarship of over $6,000 will cover full tuition for the study of chemical or mechanical engineering, with a gas-technology option, at the Illinois Institute of Technology in Chicago, Ill. It will provide $700 per year to help defray costs of room and board. The gas-technology electives cover specialized engineering in the fields of natural gas production and processing, transmission, distribution, and fuel utilization.

In addition to the scholarship, the selected student will be employed by Brooklyn Union in related engineering work for each of the three summers following his freshman year.

Oklahoma Natural purchases utility

OKLAHOMA NATURAL Gas Company has purchased the Standard Gas Co., which formerly served the cities of Madill and Tishomingo, Oklahoma.

Madill and Tishomingo are located about 10 miles apart in southern Oklahoma near the popular and growing recreation area of Lake Texhoma. The acquisition of the two communities added about 2,000 customers to the lines of Oklahoma Natural. The new area will be operated as part of the Ardmore area of the company's Shawnee district.

British lamps shine in Texas

Stonegate, a new residential development in Bedford, Texas, features streets lined with gas lights formerly used in Westminster, London, during Queen Victoria's reign. The 784-pound lamps were assembled and fitted with modern burners and mantles by the Lone Star Gas Co., Dallas, Texas. Other gas appliances to be used in the 1,000-home community are built-in oven-broiler and top-burner cooking units, gas central heating system, gas water heaters, and gas bathroom heaters

Michigan Consolidated will spend over $22 million in 1959

MICHIGAN CONSOLIDATED GAS CO., Detroit, Mich., plans to spend $22,238,000 on new facilities and equipment this year, President Ralph T. McElvenny has announced.

The major construction program is coupled with a $73.5 million expansion planned by the affiliated Michigan Wisconsin Pipe Line Co., that will increase the utility's gas supply by 28 per cent. Michigan Wisconsin is seeking regulatory authority to enlarge its system to purchase 333 million cubic feet of gas a day from sources in western Canada, Oklahoma, and Texas. Michigan Consolidated expects to receive 40 per cent of this gas or about 135 million cubic feet a day.

Michigan Consolidated will construct 217 miles of gas mains in its districts in the state and predicts it will add approximately 16,000 new customers during the year.

Mr. McElvenny said that $13,096,000 will be spent in the Detroit area where the company will install 77 miles of gas mains. This tops last year's expenditures by $2,200,000. In addition, the company will begin construction on a 32-story central office building in Detroit's Civic Center this spring. Mr. McElvenny pointed out that gas usage per customer is growing each year, as more householders convert their heating systems to gas and install more gas appliances. "Industry also needs more natural gas, as it employs improved methods of manufacturing and processing," he said.

New center operating

THE LONG ISLAND Lighting Company's new operations center in Brentwood, L. I., N. Y., has begun full service. The huge $3 million center employs 200 in its customer-service, new-business, and testing departments and 500 in field crews and dispatching and service work.

Second in size only to the 77-acre operations center in Hicksville, L. I., the new center will service all of central and western Suffolk County.

The 25-acre site provides outside storage areas for cables, poles, and transformers and has parking space for 850 automobiles. The main office building has 65,000 feet of floor space and a cafeteria with a seating capacity of 200.

Gas range bakes a champion cherry pie

Northern Illinois Gas Company's home service advisor, Pat Scroggins, samples champion cherry pie in the utility's third annual Penny Flame Cherry Pie Baking Contest. The winner, flanked by her parents, is Virginia Anne Comerford of Joliet, Ill. She received a $400 scholarship to the college of her choice

Daniel Parson will leave A. G. A. to join Northern Illinois

NORTHERN ILLINOIS Gas Co., Aurora, Ill., recently named Daniel Parson, for the past 15 years a member of the A. G. A. staff in New York, to the newly created post of manager of rate and economic research. Effective June 1, 1960, he will direct all nontechnical research operations of the company.

As director of the A. G. A. bureau of statistics since 1953, Mr. Parson has been responsible for gas industry activities at the national level in the fields of rates and regulation, marketing research, economic research, financial analysis, and operating statistics. In these duties he has served as secretary of seven A. G. A. committees.

He also has been active in federal government groups, including the Census Advisory Committee on the 1960 Census of Housing, the Committee on Oil and Gas Statistics of the Advisory Council on Federal Reports, and as an expert consultant to the Military Petroleum Advisory Board, among others.

Mr. Parson, who lives in Scarsdale, New York, received a bachelor's degree in business administration from the City College of New York in 1942 and a master's degree in business administration from New York University in 1952.

He is a member of the New York Society of Security Analysts, the American Marketing Association, American Economic Association, American Finance Association, National Association of Business Economics, American Statistical Association, and American Accounting Association.

Personal and otherwise

Officers elected to manufacturers' program

SPONSORS OF the Gas Equipment Manufacturers' (GEM) Program of the Gas Appliance Manufacturers Association, New York, N. Y., have elected a new slate of officers and operating committee members to direct the group's sixth year of national consumer and gas industry trade press advertising.

The newly elected chairman is Edward C. Hemes, vice-president of the Vulcan Rubber Products division of Reeves Brothers, Inc. Paul C. Kreuch, vice-president of the Rockwell Manufacturing Co., Pittsburgh, Pa., was elected vice-chairman.

Also elected to the operating committee were Charles H. Abbott, chairman for 1959, who is treasurer of the Sprague Meter Co.; C. Benson Dushane, Jr., vice-president of the American Meter Co.; and Donald E. Radcliffe, assistant sales manager of the Mueller Co.

The 1960 GEM Program is sponsored by 17 firms that manufacture equipment used in the production, transmission, and distribution of gas to homes and industries. The committee's plans for 1960 include a continuing program of national consumer and trade advertising, and the distribution of sales and advertising aids to gas utilities and liquefied petroleum gas dealers for use in local promotions.

Sayre named Norge chairman; Quayle becomes president

J. S. Sayre

R. H. Quayle, Jr.

THE BORG-WARNER Corp. recently announced four major staff changes in its Norge division in Chicago, Ill. According to the announcement, Judson S. Sayre has been elected chairman of the board and chief executive officer. His former duties have been assumed by Robert H. Quayle, Jr. Simultaneously Harold P. Bull has been named vice-president and assistant to the president and Walter C. Fisher appointed vice-president of sales.

Mr. Sayre, who had been president of Norge since May, 1954, was president and vice-president of Bendix Home Appliances, Inc., from 1936 to 1951. In 1937 he pioneered the automatic washer and is known as "the father of the automatic washer industry." Under his leadership, Norge has tripled its business.

Mr. Quayle, previous executive vice-president, resigned as division merchandise manager of Montgomery Ward and Co. to join Norge in 1958. Before joining Montgomery Ward, he was associated with Sears, Roebuck and Co. for 18 years.

Mr. Bull was vice-president and director of sales for Apex Electric Manufacturing Co., Cleveland, Ohio, before joining Norge in 1954. From 1945 to 1953 he was associated with Bendix, where his last title was national sales manager. He has been in the appliance field since 1927.

Mr. Fisher left the position of director of marketing to fill the vice-presidency. He was formerly responsible for all Norge appliance advertising, merchandising, home service, and other marketing operations. Before joining the company in 1954, he was a sales and merchandising executive with Associated Manufacturing Corporation.

Frank Wright retires from Southern Counties

F. B. Wright

THE retirement of Frank B. Wright, vice-president of Southern Counties Gas Co., Los Angeles, Calif., recently became effective, completing a career that began only a year after the creation of the firm to which he gave 42 years of service.

Mr. Wright, who at the time of his retirement served as vice-president in charge of public relations, customers department, and division coordination, joined Southern Counties in Pomona in 1912 as a meter reader. He was successively collector, serviceman, and fitter in the early days of the firm.

After service in World War I, Mr. Wright returned to Southern Counties and during the ensuing 37 years served in a variety of posts, the first of which was superintendent of the utility's eastern division at Pomona.

In 1935 he was transferred to the Santa Monica Bay division as superintendent, and in 1945 he was named manager of the Ventura County division. He was elected vice-president and a director of the firm in May, 1950.

The former vice-president, who during his service with Southern Counties came to know almost every past and present employee of the firm, was honored at numerous celebrations before taking up a life of retirement with his wife, Mildred, in Pacific Palisades, Calif.

Blewer joins Texas Gas

JOHN R. BLEWER has been employed as director of public relations by Texas Gas Transmission Corp., Owensboro, Ky. He will be responsible for all public relations and advertising for the company, in addition to certain aspects of stockholder relations, community relations, and financial public relations.

Before joining Texas Gas, Mr. Blewer served as manager of financial relations for Bozell and Jacobs, Inc., public relations and advertising counsel to Texas Gas. Prior to that, he was manager of stockholder and community relations for Texas Eastern Transmission Corp.

A native of Louisiana, Mr. Blewer was graduated from Louisiana State University with a bachelor-of-science degree in economics.

Niagara Mohawk promotes Schneider

F. J. Schneider

F. J. SCHNEIDER has been elected vice-president in charge of operations for Niagara Mohawk Power Corp., Syracuse, N. Y. Mr. Schneider is presently superintendent of operations for the company's western division, with headquarters at Buffalo, N. Y.

Mr. Schneider will direct all gas and electric operations of the Niagara Mohawk system and will have his headquarters at Syracuse. He succeeds the late J. Leo Welch.

Mr. Schneider began his career with Niagara Mohawk in 1933 as a foreman in the construction department at Fulton. He later worked in the company's engineering department at Syracuse and was appointed electric superintendent of the central division in 1952. He was named assistant operating superintendent of the central division in 1954 and general superintendent of operations two years later. Mr. Schneider, a graduate of Clarkson College, holds a degree in electrical engineering.

Pat Reagan retires from Webster Engineering

L. S. (PAT) REAGAN, president and director of Webster Engineering Co., Tulsa, Okla., a subsidiary of Midland-Ross Corp., has retired after 32 years of service. Mr. Reagan joined Webster in 1928, after years in the utility business and was vice-president and general manager until his elevation to president in 1957. His experience in the field of gas application will remain available through a consulting service being opened in Tulsa, Oklahoma, for industrial gas surveys, equipment application, and sales promotion.

Trembly honored

SEVERAL HUNDRED gas industry executives recently honored Frank H. Trembly, director of sales of the Philadelphia Gas Works, division of UGI, at the annual mid-winter sales conference of the Pennsylvania Gas Association.

Cited for his outstanding leadership, initiative, and dedicated effort to the gas industry, Mr. Trembly accepted a plaque from A. J. Wilmer, chairman of the P. G. A. sales-promotion committee. As first chairman of the National Television Committee of the Gas Industry, Mr. Trembly and his committee were instrumental in motivating A. G. A. to sponsor the nationwide debut of *Playhouse 90*, today ranked as an outstanding dramatic series on television.

Mr. Trembly has long been a leader in the nation's gas industry sales picture. A past president of P. G. A. and chairman of its industrial section, he has filled many committee assignments on behalf of the industry and more recently served on the A. G. A. promotion and research committee.

Names in the news—a roundup of promotions and appointments

UTILITY

In the decentralization of Central Electric and Gas Co., G. E. **Bonacker,** manager of the new Lincoln division of the company has selected **Hal A. Thorsen,** former Lincoln district manager, to serve as commercial manager. **Carl J. Olson,** who was division sales manager, will become division sales and utilization manager. **C. L. Wilcox** will be division plant manager. He was former district superintendent. **B. R. Sievers,** former director of advertising and publicity, has been named assistant division commercial manager. **Thomas A. Thomassen,** who was division gas engineer, will serve as division plant assistant. **E. C. Deane,** newly selected South Dakota division manager of Central Electric and Gas, has appointed the following men as a nucleus of his staff. **Frank C. Kuska,** former district manager at Columbus, Nebr., will be new division commercial manager. **Lyle B. Fenstermaker,** who was promotion director at Lincoln, Nebr., will be division sales and promotion manager. **Helmer A. Hovik,** formerly district superintendent at Sioux Falls, S. D., becomes division gas plant manager. **Harry A. Hagen,** former South Dakota electric manager at Woonsocket, S. D., will be division electric plant manager. **Eugene A. Schroedermeier** has been promoted from Sioux Falls office manager to manager of the Sioux Falls group, which includes Sioux Falls, Harrisburg, and Hartford. As Nebraska division manager, **D. T. Edwards** has named the following to serve on the staff of the new Nebraska division in the capacities noted: **S. E. Schultz,** former district sales supervisor at the company's Norfolk headquarters as division sales and promotion manager; **Harold L. Bryan** who has served as district superintendent at Columbus, Nebr., to division plant manager; and **Merle E. Jansen,** who has been district engineer at Lincoln, Nebr., as division utilization engineer. **Elwin E. Leffers,** district superintendent at Norfolk, Nebr., is to be Mr. Edwards' successor as northeastern district manager, with headquarters at Norfolk, Nebr. Three promotions involving the general office staff of Central are that of **Louis L. Langhus** to chief engineer of gas and electric operations, that of **R. L. Hughes,** to director of purchasing and budgets of the three new divisions, and that of **R. W. Smith,** to director of advertising and publicity of the new divisions.

Central Hudson Gas and Electric Corp. has appointed **Jack A. McEnroe** assistant treasurer of the utility. Mr. McEnroe joined Central Hudson in 1952 as a cost and rate division analyst and has been serving as assistant to the treasurer. He earned his bachelor's degree from Alfred University and his master's and doctor-of-philosophy degrees in economics from Syracuse University. The company has also appointed **L. Wallace Cross** assistant manager of the cost and rate division. Mr. Cross has served as an analyst in the cost and rate division since joining Central Hudson in 1957.

In promotions announced by New Jersey Natural Gas Co., **Ralph E. Martin,** administrative assistant of the company, has filled the newly created post of assistant vice-president in charge of commercial operations, and **Jack V. Richards, Jr.,** former industrial sales manager, has become manager of the department of planning and development.

Ohio Fuel Gas Co. has appointed **Norman R. Millard, Jr.** as a gas advisor for the company's Columbus district. He will concentrate on sales of gas equipment and appliances to builders. Before joining Ohio Fuel, Mr. Millard was a Columbus area sales representative for Gates Rubber Co. Born in Newton, Mass., he was graduated from Ohio Wesleyan University. He holds a bachelor-of-arts degree. The company has also promoted **Robert D. Clevenger** to junior engineer in the Mansfield district office. Mr. Clevenger started with Ohio Fuel last year as an engineering trainee in Columbus and was transferred to Mansfield recently.

Clyde J. Gurley has assumed his duties as production engineer for Northern Natural Gas Producing Company of Omaha, Nebr. Mr. Gurley previously was with the British-American Producing Co.

New York State Natural Gas Corp. has named **Clifford P. Cleland** superintendent of lease-Northern area. His headquarters will be at the company's Northern division offices in Sabinsville, Pa. He replaces **James M. Hawk,** who has retired. Mr. Cleland joined New York Natural in 1952 as a leaseman. He held this position until his recent promotion. Before joining the company he was employed by the clerk's office of Steuben County, N. Y. as a title searcher.

W. L. Morris has been appointed assistant comptroller of Lone Star Gas Co. He was former supervisor of methods and systems. Mr. Morris was graduated from the Dallas School of Law and received his license to practice law in 1933. He has been with Lone Star since 1923. He installed the original punch-card tabulation system for the company in 1948. He is chairman of the accounting section of the company's electronic data processing committee.

Andrew W. Johnston and Claude F. **Machen** have been elected directors of Boston Gas Co. Mr. Johnston is vice-president in charge of gas operations for the company, and Mr. Machen is vice-president directing administrative services, personnel, and the company's Charlestown electric division.

Hassel M. Sanders has been promoted to the position of secretary and treasurer of Plateau Natural Gas Co. and Kansas-Colorado Utilities. Mr. Sanders for the past several years has been associated with Arthur Andersen and Co., a nationally known public accounting firm, in their office in Houston, Texas. He replaces C. E. **Munson,** who will remain with Plateau Natural as accounting supervisor.

Robert M. Olson, Jr. was recently named assistant secretary of Southern Counties Gas

Co. Mr. Olson continues as assistant counsel of the company, a position he has held since 1958. He is a graduate of the University of Southern California and its School of Law and a member of the American Society of Corporate Secretaries.

MANUFACTURERS

Chrysler Airtemp division of Chrysler Corp. has elevated **George A. Godfrey** to district manager of the company's Chicago area. Mr. Godfrey joined Chrysler in 1946 as a development technician. He was made supervisor of the residential heating development laboratory in 1953 and has been closely associated with the sales department. He has given lectures throughout the country for the past eight years at Chrysler training schools and conventions. He studied engineering at the University of Dayton and marketing at Sinclair College. Two other promotions are that of **Harry P. Young** to manager of sales planning of residential products and that of **Joseph B. Mulé** to supervising district manager in the North Atlantic district of the applied machinery and systems department. Mr. Young has been with Chrysler since 1947. He is a graduate of the University of Pittsburgh and has served with Chrysler as field sales representative, regional manager, field representative and engineer, a zone manager, sales engineer, and field district manager. Mr. Mule joined the company in 1953 as a field engineer. He holds a degree in mechanical engineering from New York University's College of Engineering. He was named national account representative in New York for the firm in 1957 and two years later became district manager in Leonia, N. J. Before joining Chrysler he was with both the Sturdevant division of Westinghouse and Belmont Sheet Metal. In further developments the company has named **Hascal Simmons** and **Donald C. Degen** branch manager and sales engineer respectively of the Atlanta branch. Mr. Simmons joined Chrysler last year as branch operations specialist after 11 years with the Coleman Co., where he was also branch manager. Mr. Degen is a graduate of New York State Maritime College and has been with Chrysler since 1954 as a sales representative at the Chrysler International Salon in New York, N. Y. He served previously as district manager for the firm in New York, Dayton, and Chicago. **Del Robson,** a district manager for Chrysler until 1956, has rejoined the company as district manager of the Kansas City area. A salesman for Dun and Bradstreet's Kansas City office for 13 years, Mr. Robson has worked with two advertising agencies in sales work. He has spent the last seven years in the air-conditioning and heating business. The company has also appointed **Robert W. Forster** manager of sales planning of room air conditioners. Mr. Forster has been manager of business and market research since 1958. He was graduated from Miami University in Oxford, Ohio in 1952 and received his master's degree from the university the following year. In 1955 he joined Crosley-Bendix Home Appliance division of Avco Manufacturing Co. as laundry sales analyst. He was manager of consumer and trade research for Whirlpool Corp. before joining Chrysler. **Henley M. Hilburn,** manager of sales planning of residential products, has been promoted to business and market-research manager. He first joined the company as a regional manager in 1958.

The Tappan Co. has named **Russ McMurphy** manager of industrial relations. He was previously manager of industrial relations for O'Keefe and Merritt, Gurney-Tappan, and The Champion Molded Plastics Co. He is a member of the Personnel and Industrial Relations Association. The company has also appointed **Robert E. Moyer** director of purchasing. He has been vice-president in charge of manufacturing since 1957 for Tappan's Canadian affiliate, Gurney Products Ltd. Mr. Moyer joined Tappan in 1945 as foreman of the enamel department at Murray, Ky.

Caloric Appliance Corp. has named **Richard S. Franken** to the newly created post of executive assistant of sales. He will assist the vice-president of sales and will act as manager of the statistics department. Mr. Franken joined Caloric in 1953 and was manager of the cost accounting and statistics departments before his new appointment. He is a graduate of the Wharton School of the University of Pennsylvania.

William J. Lord has moved to the headquarters of General Controls Co. as assistant sales manager for the Gas Heat Controls division. Mr. Lord was formerly heating controls account executive serving the eastern region. He will assist the divisional sales manager in sales promotion and marketing activities for the company's line of automatic gas heating controls.

Walter E. Babitz has been appointed manager of market research for the Easy Laundry Appliances division of the Murray Corporation of America. Mr. Babitz succeeds **Richard Palmer,** who has resigned. He will be responsible for forecasting and market studies, as well as statistical and over-all product and market planning. He was assistant manager of market research at the Hotpoint division of General Electric for eight years.

Jack Klug, former division manager for a Midwestern range manufacturer, has been named a district representative for Magic Chef, manufacturers of nationally distributed gas ranges. His territory will include southern Mississippi and southern Louisiana. A native of Wheeling, W. Va., Mr. Klug was graduated from Bethany College.

Ralph Wenzel has been named regional manager in a 24-county area in northern Oklahoma for The Maytag Co. A Maytag dealer at Liberty, Mo. for 13 years, he joined The Maytag Co. in January, 1960. He attended school in Marshall, Mo. and during World War II was a pilot in the U. S. Navy. In another development **Charles Adams** has been named field service coordinator for the company's Newark, Pittsburgh, and Richmond branches. He will have headquarters in Washington as of this month and succeeds **Philip E. Robinson,** who is leaving the post to open a Maytag central service operation in Toronto, Canada. Mr. Robinson will service dealers in the Toronto territory of the Maytag Company Ltd. Both Mr. Adams and Mr. Robinson started with the company's service department as trainees—Mr. Adams in 1956 and Mr. Robinson in 1953. Mr. Adams became a field service assistant at the Pittsburgh branch and served in a similar capacity at the firm's St. Louis branch. He was in retail selling before joining Maytag. Mr. Robinson was appointed a service supervisor in the Newark branch in 1953 and became service manager of the Harrisburg branch in 1955. With transfer of service facilities from Harrisburg to Pittsburgh, Pa., the post of field service coordinator for Maytag's three eastern branches was created and Mr. Robinson named to fill it. He is a graduate of Drake University.

G. M. Stewart was recently named to the new post of director of materials for The Sunray Stove Co. He will assume responsibility for all materials used by the company from initial purchase to actual consumption in the manufacturing process. Departments under his direction will include purchasing, material control, and production scheduling. Mr. Stewart was formerly assistant to the sales manager with Sunray.

Utility Appliance Corp. recently appointed **Richard Petersen** chief engineer in charge of research and advanced development engineering. Mr. Petersen, who has been with Utility since 1939, was responsible for the development of new products relating to the current line of Utility's Gaffers and Sattler product division. He will continue to supervise engineering programs for the company's blowers and evaporative coolers. Also promoted was **Jerome Pinkus,** who will fill the newly created post of chief product engineer for heating and air conditioning. Mr. Pinkus has been with Utility for the past nine years.

OTHER

George W. Letteney has been named assistant treasurer of Stone and Webster Engineering Corp. Mr. Letteney, who was graduated from the Bentley School of Accounting and Finance, joined Stone and Webster in 1942 as an accounting supervisor.

George W. Anders has been appointed to the new post of director of financial relations for Texas Gas Transmission Corp. Mr. Anders will direct expanded activities of the company in its relations with financial institutions and security dealers under the supervision of the financial vice-president and in coordination with the corporate secretary. He was employed by Texas Gas in 1956 as director of public relations.

William C. Thrailkill, former assistant superintendent of the control department of Transcontinental Gas Pipe Line Corp., has been named superintendent of that department. Mr. Thrailkill joined Transco in 1950 as a senior dispatcher. He succeeds **C. M. Springer,** who has gone on an 18-month leave of absence. With Fish Engineering Corp. in Argentina, Mr. Springer will organize and train a gas dispatching and control staff composed primarily of Argentineans.

Board names Provonchee and McLaughlin at Providence Gas

THE BOARD OF DIRECTORS of Providence Gas Co., Providence, R. I., has elected Charles W. Provonchee executive vice-president and Francis J. McLaughlin, Jr. vice-president in charge of sales.

Mr. Provonchee was first employed by the company as a fitter helper in 1933. He had risen to engineering assistant by 1942 and became personnel director in 1950, executive assistant to the president in 1954, and vice-president in 1956.

Mr. Provonchee has been active in community service for many years, currently serving as president of Family Service, Inc., of Providence. He is connected with the Red Cross, Council of Community Services, and chamber of commerce. He was graduated from Brown University in 1927.

Mr. McLaughlin, a graduate of Providence College in 1936, started his career with Fall River Gas Co. Before joining Providence Gas as residential sales manager in 1955, he was sales manager of Haverhill Gas Co. He was appointed general sales manager of Providence Gas in 1958.

Officers re-elected are Guy T. Henry, president; Arthur E. Erickson, treasurer and secretary; G. Harvey Faulkner, assistant treasurer and assistant secretary; and George A. Battey, assistant treasurer.

Ohio Fuel elects Hutchison a vice-president

ALVIN M. HUTCHISON was recently elected a vice-president of The Ohio Fuel Gas Co., Columbus, Ohio, at a meeting of the company's board of directors. Mr. Hutchison, manager of transmission for Ohio Fuel until now, has been with the company for 30 years.

He started with Ohio Fuel as field superintendent in the gas measurement department in 1930, was named assistant superintendent a year later, and was promoted to superintendent for gas measurement in 1937. He was advanced to assistant manager of transmission in 1958.

A native of Pittsburgh, Pa., Mr. Hutchison received his bachelor-of-science degree in mechanical engineering from the University of Pittsburgh.

Before going with Ohio Fuel, Mr. Hutchison worked for the Manufacturers Light and Heat Company and Columbia Engineering and Management Corporation, which like Ohio Fuel are subsidiaries of the system.

Four elected officers of Pioneer subsidiary

FOUR MEN FROM Amarillo, Texas have been elected new officers of Pioneer Gathering System, a wholly-owned subsidiary of Pioneer Natural Gas Co.

James A. Davis, a Pioneer Natural Gas vice-president in charge of gas supply operations, has been elected president and general manager. Mr. Davis, a Pioneer Natural Gas director, has been named a member of Pioneer Gathering System's board of directors.

B. P. Smith, who has resigned as president of Pioneer Gathering System, has been named vice-president of that company. Mr. Smith is a vice-president and treasurer of Pioneer Natural Gas and a director of both Pioneer Natural Gas and Pioneer Gathering System.

W. A. Paxton has been named treasurer of Pioneer Gathering System, and Jack Gholson has been named assistant treasurer. Mr. Paxton is manager of corporate taxes for Pioneer Natural Gas, and Mr. Gholson is assistant manager of corporate taxes.

Safety council cites Central Hudson man

From left to right above are Ernest R. Acker, president of Central Hudson Gas and Electric Corp.; Harry S. Brescia, medal recipient; and George J. Ruoff, Central Hudson's safety director

HARRY S. BRESCIA, a gas streetman for Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y., recently became the fourth person in the U. S. to receive the National Safety Council's President's Medal for the successful application of the mouth-to-mouth breathing technique. Company president, Ernest R. Acker, congratulated Mr. Brescia for his achievement as an individual, for Central Hudson, and for the resuscitation method.

Mr. Brescia was one of the volunteer firemen who answered an alarm in Milton, N. Y., last September, 1959. One of their number was overcome by smoke at the fire and became unconscious. When a mechanical resuscitator failed to function properly, Mr. Brescia applied mouth-to-mouth breathing, and in about a minute the victim was breathing again.

Price retires after 47 years

OTTO PRICE, vice-president of Boston Gas Co., Boston, Mass. since 1942, has retired because of ill health. Mr. Price began his career in the gas industry 47 years ago.

Mr. Price joined the Citizen's Gas Light Co., Quincy, Mass., in 1913. In 1925, after the merger of that company with Boston Gas, he became assistant auditor of Boston Gas and in 1936 auditor. In 1942 he was elected vice-president and in 1956 a director of the company. He is a graduate of Pace Institute and Bentley School of Accounting and Finance.

Texas Gas elects Brandon

R. W. Brandon

R. W. BRANDON was recently elected treasurer of Texas Gas Transmission Corp., Owensboro, Ky., at a regular meeting of the company's board of directors.

Mr. Brandon has served as assistant treasurer for the past five years and will assume the office recently vacated by V. W. Meythaler, former vice-president and treasurer, who is now financial vice-president of Texas Gas.

Mr. Brandon has been with Texas Gas since 1950 and has held positions in the accounting and treasury departments.

Board elects Engelhard

THE BOARD OF DIRECTORS of Public Service Electric and Gas Co. recently elected Charles W. Engelhard a member of the board to succeed the late Horace K. Corbin, who died February 5, 1960.

Mr. Engelhard, who lives in Far Hills, N. J., is chairman of the board and president of Engelhard Industries, Inc., world's largest refiner and fabricator of precious metals. Most of the firm's operating divisions manufacture products of the platinum metals, gold, and silver, for every major industry.

Edwin Schwanhausser retires

EDWIN J. SCHWANHAUSSER retired from his post of vice-chairman of Worthington Corp., Buffalo, N. Y., on November 30, 1959, after 44 years of service. Mr. Schwanhausser, who spent his entire business career with Worthington, was named a vice-president of the corporation in 1939, and in 1942 was elected to its board of directors. In 1949 he became executive vice-president. He was named president in 1955, and subsequently vice-chairman.

Board names Wiederkehr

AT A RECENT MEETING of the board of directors of Southern Union Gas Co., A. M. Wiederkehr of Dallas, Texas, was elected vice-president of exploration.

Mr. Wiederkehr will be in charge of the company's land, geological, drilling, and production departments. Southern Union currently has leases on approximately 925,000 gross acres in seven states including Alaska.

OBITUARY

John B. Aldrich

general superintendent of Uservco, Inc., Jackson, Mich., suffered a fatal heart attack on February 29, 1960. He was 47.

Mr. Aldrich was very well known in the gas industry, especially throughout the eastern half of the United States

At the time of his passing, Mr. Aldrich was at his home in Lansing, Mich. He is survived by his widow, Elizabeth.

Robert C. Barfknecht

superintendent of the street department for Michigan Consolidated Gas Co., Detroit, Mich., died February 25, 1960, at the Henry Ford Hospital in Detroit. He was 51.

Mr. Barfknecht joined Michigan Consolidated in 1928 and became superintendent of the street department in 1957. He was in charge of maintenance and construction of the company's underground mains.

A native of St. Joseph, Mr. Barfknecht attended Purdue University. He was a noted water-color artist, having been a past president of the Scarab Club and a member of the Michigan Water Color Society. He held memberships in A. G. A., the Engineering Society of Detroit, the American Ordnance Association, and the Greater Detroit Board of Commerce. He was president of the Citigas Executive Luncheon Club.

Surviving are his wife, two sons, a daughter, and a sister.

Ernest S. Beaumont

director of safety for The Peoples Gas Light and Coke Co., Chicago, Ill., died on January 15, 1960.

Mr. Beaumont, who was born in Hoboken, N. J., attended Armour Institute, majoring in electrical engineering. He started with the company in 1916, working first at the Salt Street Laboratory and later in the old pressure department. He organized the company's safety department in 1919.

Active in accident prevention work for more than 40 years, Mr. Beaumont was chairman of the Public Utilities Section of the National Safety Council, administrative vice-president of the Greater Chicago Safety Council, vice-chairman of the Fire Prevention Committee of the Chicago Association of Commerce and Industry, vice-chairman of the Chicago chapter and national treasurer of the American Society of Safety Engineers. He served as Illinois State Chairman for the United States Department of Labor's safety program during World War II. He also served on the Chicago Mayor's safety committee and was active for many years as a member of the Accident Prevention Committee of A. G. A.

He is survived by his widow and a daughter.

Robert Glenn Cushing

Atlanta division engineer for Atlanta Gas Light Co., Atlanta, Ga., died on February 18, 1960.

Mr. Cushing, a native Georgian, joined the company in 1940, after his graduation from Georgia Institute of Technology, where he played varsity football for three years. After a brief stay with the company, he went on military leave and served for four years in the U. S. Army.

He had been division engineer of the Atlanta division of the firm since 1948.

Harry R. Maxon, Sr.

founder of the Maxon Premix Burner Co., Muncie, Ind., died on February 24, 1960, following a short illness. Since his retirement as chairman of the board of directors of the company in June, 1954, Mr. Maxon had maintained residence in Montgomery, Ala., where he was at the time of his death. He was 76.

Born in Ohio, Mr. Maxon first became associated with the gas industry in 1910. He located in Muncie in 1912, where he was instrumental in building up the industrial gas load in that area.

The Distinguished Service Award of the Industrial Gas Equipment division of the Gas Appliance Manufacturers Association was awarded to Mr. Maxon last year in recognition of his contributions in the field of industrial gas utilization, in the development of high pressure gas transmission lines, and for his assistance to the government in the public interest.

Survivors include his wife, two sons, a daughter, and seven grandchildren.

George H. Neilson

vice-president of Algonquin Gas Transmission Co., Boston, Mass., died recently.

Mr. Neilson, who joined Algonquin eight years ago, had previously been general superintendent of the Equitable Gas Co., Pittsburgh, Pa.

He was born in Arnold, Pa., and was graduated from Dartmouth College in 1925.

Besides his widow, Mrs. Virginia Patterson Neilson, he leaves a sister and a brother.

Edward O. Werba

chief engineer with Atlanta Gas Light Co., Atlanta, Ga., died March 5, 1960, after an illness of several months.

Mr. Werba, a native of Milwaukee, Wis., was a graduate of the Engineering College of the University of Wisconsin, class of 1919. He joined Atlanta Gas Light in 1927 and spent his entire career with the company.

During his service, the company grew in customers serviced from 40,000 to more than 375,000. He played an active part in the conversion of the major part of the company to natural gas in 1930.

He had been chief engineer since 1952.

CONVENTION CALENDAR

1960

MAY

2-3 •Residential Gas Sales Committee, Edgewater Beach Hotel, Chicago, Ill.

9-12 •A. G. A. Commercial Gas School, Edgewater Beach Hotel, Chicago, Ill.

9-13 •Operating Section, Joint Distribution and Transmission Conference, Hotels Roosevelt and Jung, New Orleans, La.

11-12 •Gas Conditioning Institute, National Guard Armory, Liberal, Kans.

12-13 •A. G. A. Eastern Gas Sales Conference, Shoreham Hotel, Washington, D. C.

15-17 •Wisconsin Utilities Association, Accounting Conference, Lake Lawn Lodge, Delavan, Wis.

16-18 •A. G. A. Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.

23-24 •Operating Section, Production Conference, Hotel Roosevelt, New York City.

24-26 •Pennsylvania Gas Association, Annual Meeting, Pocono Manor, Pa.

26-27 •The Natural Gas and Petroleum Association of Canada, Annual Convention, Niagara Falls, Ontario.

JUNE

1-3 •Texas College of Arts and Industries, Short Course in Gas Technology, sponsored by Southern Gas Association, Kingsville, Texas.

6-7 •A. G. A.-Pacific Coast Gas Association (Manufacturers section), Research and Utilization Conference, Miramar Hotel, Santa Monica, Calif.

13-15 •American Society of Heating, Refrigerating, and Air Conditioning Engineers, Annual Meeting, Vancouver, B.C., Canada.

20-23 •National Association of Plumbing Contractors, Annual Meeting, Cleveland, Ohio.

22-25 •Canadian Gas Association, Annual Meeting, Manoir Richelieu Hotel, Murray Bay, Quebec, Canada.

27-28 •Michigan Gas Association, Grand Hotel, Mackinac Island, Mich.

28 •American Home Economics Association Convention, Denver, Colo.

AUGUST

17-19 •Mid-West Gas Association, Gas School and Conference, Iowa State College, Ames, Iowa.

Personnel service

SERVICES OFFERED

Engineering Administrator—gas engineer with 20 years experience in natural gas distribution and transmission. Familiar with measurement, regulation, instrumentation, leakage control, standard procedures, personnel training, electronic data processing. Very interested in cost reduction through automation and the elimination of unnecessary and/or duplicate procedures. Registered in California and Utah as a professional engineer. Detailed resume and references sent upon request. **1975.**

Industrial Sales Engineer—background includes industrial sales engineering, residential and commercial heating, water heating, domestic appliances and general management responsibilities. Thorough knowledge of sales procedure in both large and small utility companies, natural, manufactured and LP-Gases. Detailed resume on request. **1976.**

Mechanical Engineer—with broad experience in natural gas industry including operations and rates, also several years with FPC (certificates and rates), is desirous of changing position. **1977.**

Gas Fuel Graduate—Southern Technical Institute, unit of Georgia Tech., two years' previous experience, desires position in engineering or management. Age 23, single, draft exempt. Prefer location in southeast. **1978.**

Comptroller—had responsibility since 1944 for all accounting, treasury and corporate secretary functions including budgeting, financing, systems and procedures, taxes and special studies in a medium-size gas utility. Detailed resume on request. **1979.**

Public Relations Director—experience all phases of public relations. Sound approach to community and customer relations. **1980.**

Personnel Manager—practical experience in recruiting, interviewing, hiring, and training. Can relocate. **1981.**

Woman Engineer—French, seeks position in gas industry. Two years experience in research and design of ventilation and of different uses of gas. New York location. Technical translations: English, French, Italian, German, Spanish. Translating work also accepted at home. **1982.**

Aggressive, personable, technical background, B.S., two years graduate work (geology, geophysics, mining engineering), age 24, seeking position that demands effort, offers challenge. Trained for geological exploration but will consider technical sales, other positions. Resume upon request. Available April. **1983.**

June, 1960 graduate, Gas Fuel Technology Dept., Southern Technical Institute (unit of Georgia Tech). Prefers job in technical sales or engineering. Age 27, married, one child. Will relocate. **1984.**

Comptroller, Auditor, Assistant Treasurer—registered CPA, with 11 years public accounting and utility supervisory experience covering gas production, transmission and distribution. Background of securities, registration, internal auditing, corporate taxes, federal and state regulations, budgets, and preparation of rate exhibits. B.S. in accounting and management. Age 36. Salary requirements $12-14,000. Detailed resume on request. **1985.**

POSITIONS OPEN

Gas Measurement Specialist—company has been producing equipment to measure gas since early 1900's. Mechanical Engineering degree or its equivalent necessary. Salary between $7,200 and $9,000 per year plus sales bonus. Basic requirements plus two to four years experience in the gas measurement field (industrial or utility) in an engineering or sales capacity concerned with industrial usage. After brief training period—field assignment as a meter field sales engineer. **0926.**

Distribution Engineer—well established, rapidly expanding Pacific northwest natural gas utility has opening for graduate engineer with minimum of five to eight years experience in gas distribution work including design, construction, corrosion control, load studies and network analysis. Prefer married man under 35. Send resume of education, experience and salary requirements. **0927.**

Assistant Home Service Director—position open in midwest gas utility serving metropolitan area of 250,000. Department of five home economists. An excellent opportunity if looking for permanency. Ability to plan and give demonstrations essential. **0928.**

Superintendent of Gas Measurement—natural gas distribution utility desires aggressive, experienced natural gas measurement man for position of Superintendent, Gas Measurement Department. Responsible for repair, adjustment and testing of residential, commercial and industrial meters (some Roots-Connersville), regulators, pressure volume correctors, temperature compensators, etc., and supervise fabrication and installation of industrial meter settings. Send resume of experience and compensation, references. Location, Great Lakes area. **0929.**

Commercial Gas Salesman—immediate openings for experienced commercial sales representatives in new and expanding natural gas company. Location offers vacationland climate to individuals qualified to develop restaurant, hotel and commercial fields. Excellent employee benefits program; starting salary depends on individual qualifications. Minimum of five years' experience necessary. Submit complete resume, starting salary, to J. G. Barnhart, Employee Relations Dept., The Houston Corp., P.O. Box 10400, St. Petersburg 33, Florida. **0930.**

Manufacturer Representatives—now calling on the gas trade to add the finest gas lamp made to their line. Top commissions. Many areas available. **0931.**

General Sales Manager—small gas utility in north central area, embarking on an extensive expansion program, needs sales manager to supervise division managers, organize gas sales and appliance sales programs. Experience in dealer promotion programs desirable. Send resume of education, experience and salary. **0932.**

Inventor-engineer ends 44-year career

W. M. Hepburn

WILLIAM M. HEPBURN recently ended his 44-year career with Surface Combustion Division of Midland-Ross Corp., Toledo, Ohio.

Following his graduation from Cornell University in 1911, Mr. Hepburn worked for the United Gas Improvement Co. He joined Surface in 1916, working first in the department of erection and later in sales.

He served as a U. S. Army captain in both the Mexican Revolution and World War I. He was in England for six months after the latter war to study combustion engineering at Leeds University.

When the original Surface Combustion Co. merged with Doherty Enterprises in 1924, he was appointed chief engineer and elected a vice-president.

Mr. Hepburn's inventive work resulted in the issuing of 31 design patents in his name. There have been few important developments in industrial furnace equipment of any major importance to which he or men working under his direction have not made significant contribution.

Jones named director

MORGAN JONES, JR. was recently elected a director of Lone Star Gas Co., Dallas, Texas, at a meeting of the board of directors.

The new director replaces the late Thomas H. Hislop, who served on the Lone Star Gas Company board for six years.

Mr. Jones' principal occupations are ranching and investments, and he has numerous other business interests in the West Texas area. He holds a mechanical engineering degree from Rice Institute and a master-of-business degree in banking and finance from Wharton School of Finance.

PNGMA elects Coleman

JAMES E. COLEMAN, vice-president-general manager of Manufacturers Light & Heat Co., Pittsburgh, Pa., has been elected president of the Pennsylvania Natural Gas Men's Association, succeeding D. B. Beecher, president of Equitable Gas Co., Pittsburgh.

Mr. Coleman began his career in 1925 as an industrial engineer with Northern Indiana Public Service and joined Manufacturers in 1937. He was named purchasing agent in 1948, assistant vice-president in 1952, vice-president in 1953, and vice-president-general manager in 1957.

Robertshaw names Scott

D. Rex Scott

D. REX SCOTT has been elected an assistant vice-president of Robertshaw-Fulton Controls Co., Richmond, Va. Mr. Scott is general manager of the firm's western research center in Anaheim, Calif.

Mr. Scott joined the company in 1950 as a patent attorney. Later, he was a district sales manager and director of planning.

He holds degrees in engineering and law from the University of Wisconsin and is a member of the Wisconsin Bar Association and the Patent Bar.

Firm elects Crothers

MEMBERS OF THE BOARD of directors of General Controls Company of Glendale, Calif., have named George Crothers vice-president and general manager of the firm's Canadian headquarters in Guelph, Ont.

Mr. Crothers was formerly general manager of the Canadian operation that he helped form in 1950. He recently announced the beginning of moving-in operations at the new 40,000-square-foot Guelph plant.

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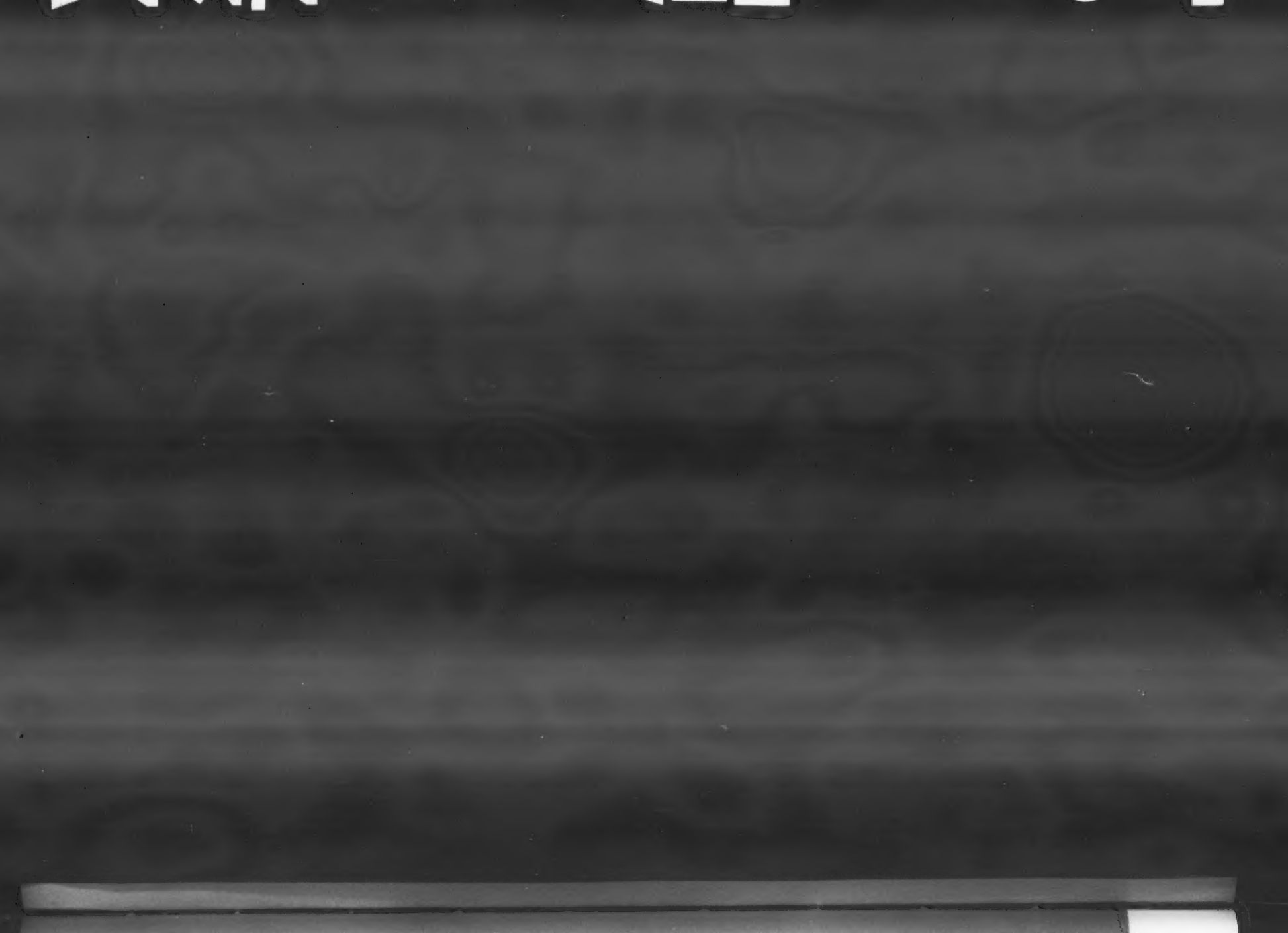
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